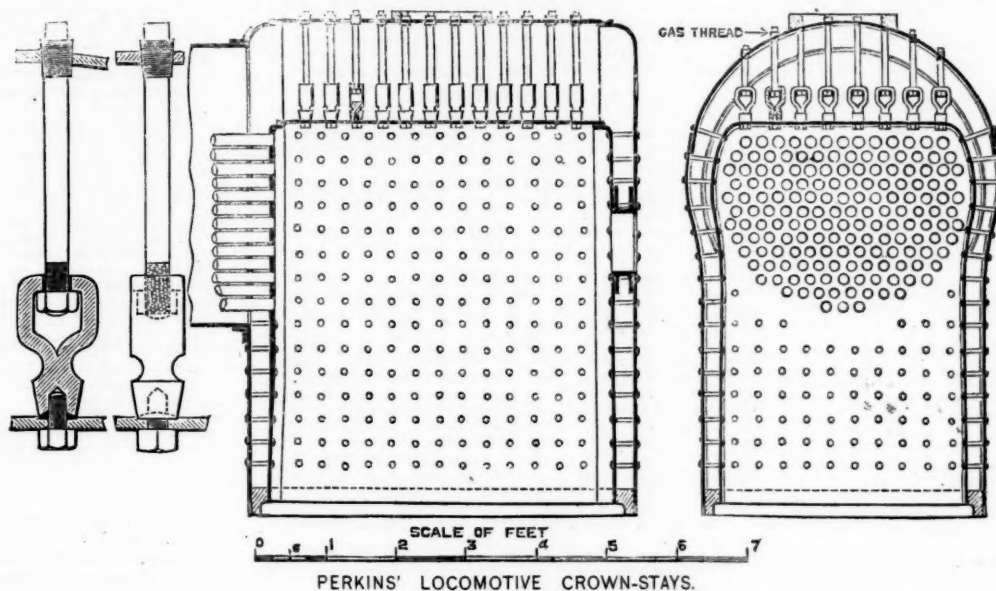




FRIDAY, APRIL 8, 1881.

Perkins' Locomotive Roof or Crown Stays.

The roof stays illustrated by the annexed wood-cuts (which, with the following description, are copied from *The Engineer*), have been designed and patented by Mr. Stanhope Perkins, of the Manchester, Sheffield & Lincolnshire Railway, for all locomotive, portable, and other boilers where the fire-boxes are suspended from the crown or outer fire-boxes. A description of the method of fixing the stays will best show their application. After the boiler and fire-box have been riveted together complete, the copper box is put in, being fixed in its proper position, and is afterwards put under the radial drilling machine, and all the holes drilled from the outer shell for the copper stays, and also all the holes drilled in a direct line from the crown plate to the top plate of the copper box; and while in that position the holes in the outer shell are tapped with a conical tap, of sufficient length for the plain end to pass through the hole which has been drilled in the copper box; which, of course, keeps the tap in proper line. When all the holes are completed the copper box is withdrawn out of the outer shell and the top plate of the copper box is tapped with the Whitworth's ordinary taps; the whole of the screws are then screwed in from the inside of the box perfectly tight; the socket is then screwed on. This socket is turned hollow, so as to give a sharp edge, and must be screwed down by a bar until the whole of the sharp



PERKINS' LOCOMOTIVE CROWN-STAYS.

edge has cut into the copper a perfect circle. It is then turned backwards by the bar and the hollow filled with putty cement, and afterwards screwed perfectly tight to the proper position, as shown in the engraving. This will prevent leaky roof stays, as it is impossible for the water to come into contact with the metal, preventing any oxidation taking place. The long roof stays are then passed down and screwed into the outer shell, within $\frac{1}{4}$ in. of home, with an hexagon or square nut screwed on the end of the stay and held inside of the stirrup, and in all cases must be screwed up tight in the stirrup; and the roof stay must then be screwed perfectly tight into the outer shell. This will tend to draw the top plate of the box nearer to the outer shell, and will thus assist the ordinary expansion of the copper box. It is claimed that this system will prevent broken tubes and oval tube holes, as this mode of staying will not allow the crushing down of tubes or plates, besides giving a much greater water area. It enables the top of the box to be well cleaned and easily got at by the washers; and is a much neater arrangement altogether than the old system of beam roofing stays. The system is in use on the Manchester, Sheffield, and Lincolnshire Railway, and with complete success.

Train Accidents in February.

The following accidents are included in our record for the month of February:

REAR COLLISIONS.

On the morning of the 1st a passenger train on the Delaware, Lackawanna & Western road ran into some freight cars which were being switched across the main track in Newark, N. J. The engine was damaged, one freight car upset and another thrown across the track and badly broken.

On the 2d a freight train on the Albany & Susquehanna road broke in two near Richmondville, N. Y., and the rear section ran into the forward one.

On the 2d a passenger train on the New York, Lake Erie & Western road ran into a freight which projected from a siding in Newburg, N. Y., damaging an engine and injuring two men.

On the 5th a freight train on the Baltimore & Ohio road ran into the rear of a preceding freight at Duffield, W. Va., wrecking the caboose, killing a brakeman and injuring the conductor.

On the evening of the 5th a passenger train on the Chesapeake and Potomac road ran into the rear of a freight near Fitzwilliam, N. H., wrecking several cars. The engineer jumped and was killed; the baggageman and a brakeman were hurt.

On the morning of the 6th a freight train on the Pennsylvania road ran into the rear of a preceding freight at East Brunswick, N. J., wrecking three cars.

Very early on the morning of the 7th a freight train on the New York, Lake Erie & Western road broke in two near Port Jervis, N. Y., and the rear section ran into the forward one, wrecking several cars.

On the 8th a freight train on the St. Paul, Minneapolis & Manitoba road ran into a preceding train near Morris, Minn., wrecking the caboose and injuring the conductor.

On the morning of the 10th a passenger train on the North Penn Division of the Philadelphia & Reading road ran into a freight which was just going into a siding at Rock Hill, Pa. Both engines and several cars were wrecked and eleven passengers hurt.

On the afternoon of the 10th a passenger train on the Boston, Concord & Montreal road ran into the rear of a freight which was standing at East Concord, N. H., wrecking several cars and injuring the engineer.

On the 11th a freight train on the New York Central & Hudson road ran into a preceding freight in Schenectady, N. Y., wrecking several cars.

Very early on the morning of the 13th a freight train on the Southwestern (Georgia) road ran over a misplaced switch and into another freight standing on a siding at Howard, Ga., doing some damage.

On the afternoon of the 14th a freight train on the New York & New England road ran over a misplaced switch and into some cars standing on a siding at Franklin, Mass. Several cars were wrecked.

On the afternoon of the 15th a freight train on the Delaware road ran into a preceding freight which had stopped to couple some cars which had broken loose near State Road, Del. The engine and several cars were damaged badly, and a tramp stealing a ride fatally hurt.

On the night of the 16th a local passenger train on the Pennsylvania Railroad ran into the rear of a freight which was just going into a siding in Rahway, N. J. The passenger engine was damaged and several freight cars wrecked.

Early on the morning of the 17th a freight train on the New York, Lake Erie & Western ran into a preceding freight at Shohola, N. Y., wrecking the caboose.

On the night of the 18th a freight train on the Grand Rapids & Indiana road ran into a preceding freight near Kendallville, Ind., wrecking several cars.

On the night of the 21st, as a freight train on the Cleveland & Marietta road was making a flying switch in Mari-

etta, O., a detached car passed the switch and ran into the rear of the train, wrecking two cars.

On the afternoon of the 22d a special passenger car on the Buffalo, Pittsburgh & Western road ran into the rear of a regular passenger train which was just starting from President, Pa. The engine of the special was damaged and the rear car of the other train wrecked. Five passengers were badly and nine slightly hurt, most of them being scalded by steam from the locomotive.

On the evening of the 22d a gravel train on the Boston & Albany road broke in two near Newton, Mass., and the rear section ran into the forward one, wrecking 13 cars.

On the evening of the 23d a wild engine ran into the rear of a freight train on the Indianapolis & St. Louis road near Venice, Ill. The wild engine and five cars of the freight were badly wrecked, most of the wreck being piled up at the bottom of a ravine beside the track. One man in the caboose was slightly hurt. The engineer of the wild engine had not been notified that the freight was ahead of him.

On the night of the 23d a freight train on the New York, Pennsylvania & Ohio road ran into a preceding freight near Greenville, Pa., wrecking several cars.

On the 24th a passenger train on the Marietta & Cincinnati road ran into the rear of a stock train in Cincinnati, O., wrecking two cars.

Near midnight on the 24th a passenger train backing into the New York Central & Hudson River depot in Rochester, N. Y., ran into a special passenger train standing in the depot, damaging two cars.

Early on the morning of the 27th a freight train on the Pittsburgh, Ft. Wayne & Chicago road ran into the rear of a preceding freight which had run off the track near Canton, O., piling up 14 cars in a bad wreck and injuring three men.

On the morning of the 28th a log train on the Clare logging road ran into a preceding train near Clare, Mich., wrecking several cars.

BUTTING COLLISIONS.

On the 1st there was a butting collision between two freight trains in the Lake Shore & Michigan Southern yard in Cleveland, O., by which both engines were damaged. A blinding snow was falling at the time.

On the afternoon of the 4th there was a butting collision between two freight trains on the Pittsburgh, Cincinnati & St. Louis road near Steubenville, O., and both engines were damaged. A brakeman was killed.

On the night of the 4th there was a butting collision between two freight trains on the Lake Shore & Michigan Southern road near Millersburg, Ind., by which both engines and several cars were wrecked. An order had been given to hold one train but the operator did not deliver it.

On the 5th there was a butting collision between a passenger and a freight train on the New York & New England road near Bolton, Conn., by which both engines were slightly damaged.

On the evening of the 8th there was a butting collision between a passenger and a construction train (which was running backward) near Owaneke, Ill. The caboose was wrecked, three men killed, the conductor and nine laborers hurt. The repair train was running for a siding to avoid the passenger.

On the evening of the 12th there was a butting collision

CROSSING COLLISIONS.

On the morning of the 10th a New York & New England freight ran into an Old Colony passenger train at the crossing in Walpole, Mass., wrecking a car. The fireman was killed and five persons hurt. There was a dense fog at the time. The Railroad Commission blamed the New York & New England engineer for his carelessness.

DERAILMENTS, BROKEN RAIL.

About noon on the 1st a passenger train on the Rutland road struck a broken rail near Middlebury, Vt., and four cars were thrown from the track, blocking the road over three hours.

On the morning of the 2d a passenger train on the Michigan Central road struck a broken rail near Barron Lake, Mich., and two cars were thrown from the track and upset,

killing a passenger, injuring five passengers and five trainmen.

On the 2d a car of a passenger train on the Northern Pacific road was thrown from the track in Bismarck, Dak., by a broken rail.

On the night of the 2d the milk train on the Newark Branch of the New York, Lake Erie & Western road struck a broken rail near Woodside, N. J., and two cars were thrown from the track.

On the morning of the 4th a freight train on the Wabash, St. Louis & Pacific road struck a broken rail near Ft. Wayne, Ind., and was thrown from the track. The engineer and a brakeman were killed.

On the morning of the 4th two cars of a passenger train on the Cincinnati Southern road were thrown from the track near Corinth, Tenn., by a broken rail, and rolled down a high bank, injuring 36 persons, most of them slightly.

On the night of the 5th a passenger train on the Cleveland, Columbus, Cincinnati & Indianapolis road struck a broken rail near Marion, O., and three cars left the track and went down a bank. One passenger was hurt.

On the evening of the 7th a freight train on the Cleveland & Pittsburgh road struck a broken rail near Steubenville, O., and 11 cars were piled up in a bad wreck.

On the morning of the 8th a passenger train on the Lake Shore & Michigan Southern road struck a broken rail near Striker, Ind., and several cars went off the track and down a bank, injuring twelve passengers slightly.

On the night of the 12th an engine and snow plow on the Wabash, St. Louis & Pacific road were thrown from the track by a broken rail near Richmond, Mo. The conductor, engineer and five laborers were hurt.

On the morning of the 14th a passenger train on the Chicago, Burlington & Quincy road was thrown from the track at Monmouth, Ill., by a broken rail. Nine persons were hurt.

On the morning of the 17th the caboose of a freight train on the Wabash, St. Louis & Pacific road was thrown from the track by a broken rail in East Hannibal, Ill., and went down a high bank, caught fire and was burned up. One man was killed and four hurt.

On the evening of the 17th two cars of a passenger train on the Kansas Division of the Union Pacific road were thrown from the track at River Bend, Col., by a broken rail.

On the morning of the 18th three cars of a freight train on the Cleveland, Mt. Vernon & Delaware road were thrown from the track near Cuyahoga Falls, O., by a broken rail.

Early on the morning of the 21st two cars of a passenger train on the Wabash, St. Louis & Pacific were thrown from the track near Burnside, Ill., by a broken rail.

On the night of the 23d a freight train on the Wabash, St. Louis & Pacific road struck a broken rail near Belden, Ind., and 13 cars were wrecked.

On the morning of the 24th a passenger train on the Midland Railroad, of New Jersey, struck a broken rail near Ogdensburg, N. J., and two cars left the track and upset down a bank. The cars caught fire and both were destroyed, but the passengers were able to get out without fatal results. Five trainmen and nine passengers were hurt, most of them but slightly.

On the night of the 26th a passenger train on the Southern Central road was thrown from the track by a broken rail near Berkshire, N. Y. A passenger jumped, fell under the rear car, which upset, and was killed; three others were hurt.

Very early on the morning of the 27th a freight train on the Pittsburgh, Ft. Wayne & Chicago struck a broken rail near Canton, O., and several cars were thrown from the track.

DERAILMENTS, BROKEN WHEEL.

On the morning of the 1st a Wabash, St. Louis & Pacific passenger train was thrown from the track in the St. Louis Bridge tunnel in St. Louis, Mo., by the breaking of a wheel. Several cars were slightly damaged and the passengers were kept in the tunnel nearly two hours.

On the morning of the 1st the engine of a passenger train on the Chicago, Milwaukee & St. Paul road was thrown from the track near Long Grove, Ia., by a broken wheel.

On the 2d the rear car of a passenger train on the St. Paul, Minneapolis & Manitoba road was thrown from the track near Elk River, Minn., by a broken wheel and 13 persons were slightly hurt.

On the evening of the 3d two cars of a passenger train on the Buffalo, New York & Philadelphia road were thrown from the track near Ebenezer, N. Y., by a broken wheel. Three persons were hurt.

On the morning of the 4th a car of a freight train on the Danbury & Norwalk road was thrown from the track near Bethel, Conn., by a broken wheel.

On the morning of the 4th a car of a passenger train on the Staten Island road was thrown from the track near Armadale, N. Y., by a broken wheel.

On the night of the 4th five cars of a freight train on the New York & New England road were thrown from the track near Andover, Conn., by a broken wheel, and two of them were wrecked, blocking the road all night.

On the evening of the 5th a car of a freight train on the Green Bay & Minnesota road was thrown from the track near Onalaska, Wisc., by a broken wheel.

Very early on the morning of the 6th several cars of a freight train on the New York, New Haven & Hartford road were thrown from the track near Westport, Conn., by a broken wheel.

On the morning of the 6th several cars of a freight train on the New York, Lake Erie & Western were thrown from the track at Carr's Rock, Pa., by a broken wheel.

On the night of the 8th the tender of a passenger train on the New York, Lake Erie & Western road was thrown from the track at Lackawaxen, Pa., by a broken wheel.

Early on the morning of the 15th a freight train on the New York, Lake Erie & Western road was thrown from the track near Lackawaxen, Pa., by a broken wheel.

On the 17th a car of a passenger train on the Northern Pacific road was thrown from the track near Jamestown, Dak., by a broken wheel.

On the 23d several cars of a freight train on the Indianapolis & St. Louis road were thrown from the track near Litchfield, Ill., by a broken wheel and a brakeman was hurt.

DERAILMENTS, BROKEN AXLE.

On the 1st a car of a freight train on the Illinois Central was thrown from the track at Cobden, Ill., by a broken axle.

On the evening of the 1st several cars of a freight train on the Lake Shore & Michigan Southern road were thrown from the track near Coldwater, Mich., by a broken axle.

On the night of the 2d a car of a passenger train on the New York, Lake Erie & Western was thrown from the track near Port Jervis, N. Y., by a broken axle.

On the 6th a car of a passenger train on the New York, Lake Erie & Western road was thrown from the track near Wellsville, N. Y., by a broken axle.

On the night of the 7th some cars of a freight train on the Utica & Black River road were thrown from the track near Utica, N. Y., by a broken axle.

About noon on the 11th a passenger train on the Cleveland, Columbus & Indianapolis road was thrown from the track near LaRue, O., by a broken axle under the tender. Five persons were slightly hurt.

DERAILMENTS, BROKEN BRIDGE.

On the evening of the 5th a passenger train on the Houston & Texas Central road broke through a bridge at Cedar Creek, Tex., and five cars went down, injuring 18 persons.

On the 6th a freight train on the Peoria, Decatur & Evansville road broke through a bridge near Decatur, Ill., and three cars went down and were wrecked.

On the morning of the 9th the iron bridge over Farmington River, near Plainville, Conn., on the New Haven & Northampton road, gave way under a freight train and the caboose went down into the river. It is said that a large new snow-plow which was with the train, struck and broke the end post of one of the trusses.

On the night of the 9th a bridge over Rush Creek, near Pleasant Valley, O., on the Scioto Valley road, gave way under a passenger train and the tender went into the creek. An abutment had been washed out.

On the night of the 10th a freight train on the Charleston & Savannah road broke through the long trestle on the South Carolina side of the approach to the Savannah River bridge. The engine and several cars went down into the swamp and nearly two miles of the trestle went down, the bents apparently knocking each other over somewhat as children sometimes set up blocks in a row and knock down the end one to see the whole row fall over.

Early on the morning of the 12th, the engine of a construction train on the Western North Carolina road broke through a small bridge near Asheville, N. C., and the engine went down.

On the morning of the 25th an old iron bridge on the Illinois Central, near Heyworth, Ill., gave way under a freight train and two cars fell into the ravine. They caught fire and were destroyed.

DERAILMENTS, LOOSE WHEEL.

On the night of the 7th a car of a freight train on the New York Central & Hudson River road was thrown from the track at Sing Sing, N. Y., by a loose wheel.

DERAILMENTS, SPREADING OF RAILS.

On the 14th the engine of a passenger train on the St. Joseph & Western road was thrown from the track by the spreading of the rails on a bridge over the Blue River near Marysville, Mo. The engine went off the bridge, fell into the river and was wrecked.

On the evening of the 24th three cars of a passenger train on the Texas & Pacific road were thrown from the track near Gladewater, Tex., by the spreading of the rails, and wrecked, injuring 20 persons, several of them very badly.

DERAILMENTS, WASH-OUTS AND LAND-SLIDES.

On the 5th a freight train on the New Orleans Division of the Louisville & Nashville road ran into a wash-out near Chef Moutreux, La., and was wrecked.

On the 9th a construction train on the Western North Carolina road was thrown from the track by a land-slide at the Swannanoa tunnel and three convict laborers killed.

On the evening of the 12th a passenger train on the New York, Providence & Boston road ran into a land-slide near Providence, R. I., and five cars were thrown from the track, delaying the road several hours.

About noon on the 20th a freight train on the Valley Railroad ran into a land-slide near Ft. Defiance, Va., and the engine and several cars were wrecked, injuring one man badly.

DERAILMENTS, SNOW.

On the 1st a locomotive of a freight train on the Lake Shore & Michigan Southern road was thrown from the track in Cleveland, O., in a snow-drift.

On the 8th a snow-plow and two engines on the Illinois Central road ran off the track near Walesboro, Ia., in a deep drift.

On the morning of the 12th an engine and snow-plow on the Chicago, Rock Island & Pacific road ran off the track in a drift near Newton, Ia. Three men were slightly hurt.

DERAILMENTS, ACCIDENTAL OBSTRUCTION.

On the night of the 12th a freight train on the Cincinnati Southern road ran into a large boulder which had fallen on the track near Sloan's Valley, Ky., and the engine and six cars were thrown from the track and wrecked, killing a brakeman.

On the evening of the 22d a freight train on the Boston & Albany road ran upon the wreck of some gravel cars which had been thrown over on its track a moment before by a collision on the other track near Newton, Mass. The freight was thrown from the track and four cars wrecked.

On the 26th a freight train on the Cayuga Division of the Lehigh Valley road struck a stone which had fallen on the track near King's Ferry, N. Y., and the engine went down a bank into the lake.

DERAILMENTS, MISPLACED SWITCH.

On the morning of the 4th a passenger train on the Fort Wayne & Jackson road was thrown from the track in Fort Wayne, Ind., by a misplaced switch, and one car upset down a bank.

On the night of the 9th a freight train on the South and North Alabama Road was thrown from the track at Pierce Mine, Ala., by a misplaced switch. The engineer was hurt.

On the 15th a passenger train on the Cincinnati, Hamilton & Dayton road was thrown from the track at the Cincinnati stock yards by a misplaced switch. The fireman was hurt.

UNEXPLAINED DERAILMENTS.

On the morning of the 1st a passenger train on the Philadelphia & Reading road ran off the track near Locustdale, Pa., and the baggage car ran down a high bank and fell into an old mine hole at the bottom.

Nery early on the morning of the 2d a freight train on the Vandalia line ran off the track near Terre Haute, Ind., blocking the road nine hours.

On the evening of the 2d a freight train on the Central Railroad of Georgia, ran off the track near Atlanta, Ga., blocking the road six hours.

On the morning of the 3d a local passenger train on the Boston & Lowell road ran off the track near Lawrence, Mass. The engine upset and a car was thrown across the track, both being badly damaged.

On the 3d a freight train on the Pittsburgh, Ft. Wayne & Chicago road ran off the track near Ft. Wayne, Ind.

On the morning of the 4th a passenger train on the St. John & Maine road ran off the track near Apohaqui, N. B. The engine was wrecked, the engineer and fireman killed.

On the 4th a freight train on the Chicago, Burlington & Quincy road ran off the track near Woodburn, Iowa.

On the evening of the 4th three cars of a freight train on the Pittsburgh, Ft. Wayne & Chicago road were thrown from the track near Ft. Wayne, Ind.

On the 6th a passenger train on the Kansas Division of the Union Pacific ran off the track near Denver, Col. A brakeman was hurt.

Early on the morning of the 7th a passenger train on the Illinois Midland road ran off the track near Hervey City, Ill., blocking the road all day.

On the afternoon of the 7th a passenger train on the New York Central & Hudson River road ran off the track near Niagara Falls, N. Y. Several cars were badly broken and two passengers hurt.

On the morning of the 8th several cars of a passenger train ran off the track at Susquehanna, Pa., on the New York, Lake Erie & Western road.

On the morning of the 8th a car of a freight train on the New York, Lake Erie & Western road ran off the track in Paterson, N. J.

On the evening of the 8th the engine of a passenger train on the Manhattan Elevated road ran off the track at the Fifty-third street station in New York.

On the morning of the 9th four cars of a coal train on the New York, Lake Erie & Western road were thrown from the track near Port Jervis, N. Y.

On the night of the 9th a passenger train on the Rome, Watertown & Ogdensburg road ran off the track near Rome, N. Y., injuring the engineer.

On the evening of the 10th two cars of a passenger train on the Central Railroad, of New Jersey, jumped the track at Communipaw, N. J. One was thrown across the track; the other upset, caught fire and was burned up. Eight passengers were injured, besides a number slightly bruised.

Very early on the morning of the 14th a freight train on the New York Central & Hudson River road ran off the track near Spencerport, N. Y., and several flat cars were wrecked.

On the 14th a freight train on the Missouri, Kansas & Texas road ran off the track near Rensselaer, Mo., and nine cars were wrecked.

On the evening of the 14th the engine of a freight train on the Marietta & North Georgia road ran off the track near Canton, O.

On the afternoon of the 15th the baggage car of a passenger train on the Utica & Black River road ran off the track at Alder Creek, N. Y.

On the 16th a car of a freight train on the Dayton & Michigan road ran off the track near Sidney, O., injuring a brakeman.

On the afternoon of the 16th a freight train on the Chicago & Northwestern road ran off the track in Ishpenning, Mich., and upset, killing a man who was riding on it.

On the evening of the 17th the engine of a freight train on the Cleveland, Mt. Vernon & Delaware road ran off the track at Cuyahoga Falls, Ohio.

On the night of the 17th the engine of a passenger train on the European & North American road ran off the track near Oldtown, Me.

On the 18th a car of a construction train on the Augusta & Knoxville road ran off the track in Augusta, Ga., killing the Road-Master.

On the 19th the rear car of a passenger train on the Wabash, St. Louis & Pacific road jumped the track at Napoleon, O.

On the night of the 21st two cars of a passenger train on the Houston & Texas Central ran off the track in Bremond, Tex., and were badly broken, injuring six persons.

On the morning of the 23d some cars of a freight train on the New York, Lake Erie & Western ran off the track in Buffalo, N. Y.

On the morning of the 23d a freight train on the Chicago, Pekin & Southwestern road ran off the track near Wesley City, Ill.

On the morning of the 24th some cars of a freight train on the New York, Lake Erie & Western road ran off the track in the yard at Fort Jervis, N. Y.

On the morning of the 24th a freight train on the Vandalia Line ran off the track near Troy, Ill., blocking the road four hours.

On the 26th a car of a passenger train on the Louisville & Nashville road ran off the track near New Orleans, La., and three persons were slightly hurt.

On the night of the 26th a freight train on the New York Central & Hudson River road ran off the track near Spuyten Duyvil, N. Y., blocking the road four hours.

On the 27th a freight train on the Georgia road ran off the track near Washington, Ga.

On the 28th a passenger train on the Georgia road ran off the track near Washington, Ga.

On the 28th the engine of a freight train on the Cincinnati, Sandusky & Cleveland road ran off the track at Springfield, O., blocking the road two hours.

BROKEN WHEEL, NOT CAUSING DERAILMENT.

On the 5th the engine of a passenger train on the New York, New Haven & Hartford road broke a tire on a driving wheel when near New Britain, Conn., delaying the train some time.

On the 7th, as a freight train on the New York & New England road was near Willimantic, Conn., a tire broke on one of the driving wheels and a large piece was thrown up through the cab, injuring the engineer slightly.

On the morning of the 10th as a passenger train on the Philadelphia & Reading road was near Tipton, Pa., a driving wheel broke on the engine and pieces of the tire smashed one side of the cab and tore a hole in the boiler. The engineer and fireman were hurt.

On the 14th the engine of a passenger train on the Louisville & Nashville broke a driving wheel near Franklin, Tenn., but did not leave the track.

BROKEN CONNECTING RODS.

On the evening of the 8th the engine of a passenger train on the New York & New England road broke a connecting rod near Coventry, R. I., and the rod tore a hole in the boiler. The engineer and fireman were scalded.

On the 10th the engine of a freight train on the Chicago & Alton road broke a connecting rod in the yard in Alton, Ill., and was damaged.

On the morning of the 11th the engine of a passenger train on the Chicago & Alton road broke a connecting rod near Streator, Ill., the loose end tearing up one side of the cab. The engineer jumped and was killed.

On the morning of the 14th the engine of a freight train on the New York, Lake Erie & Western road broke a parallel rod near Shohola, N. Y., and was damaged.

On the 19th the engine of a passenger train on the Wabash, St. Louis & Pacific road broke a parallel rod near Toledo, O., and the loose end tore out one side of the cab, injuring the engineer fatally.

On the morning of the 21st, as an Ohio & Mississippi freight train was running over the trestle approach to the bridge in East St. Louis, Ill., a parallel rod broke, tearing up one side of the cab. The fireman jumped and was killed.

On the 21st the engine of a passenger train on the Michigan Central road broke a parallel rod near Ypsilanti, Mich., damaging the engine badly.

On the night of the 23d the engine of a passenger train on the Fitchburg road broke a parallel rod near Athol, Mass., and the loose end tore a hole in the boiler.

On the evening of the 26th the engine of a passenger train on the New York & New England road broke a connecting rod when near Franklin, Mass., and was badly damaged.

This is a total of 149 accidents, whereby 27 persons were killed and 253 injured. Twenty accidents caused the death of one or more persons; 32 caused injury but not death, and no injury serious enough for record took place in 97, or two-thirds of the whole number.

As compared with February, 1880, there was an increase of 85 accidents, of 11 in the number killed and of 204 in that injured.

These accidents may be classed as to their nature and causes as follows:

COLLISIONS:	
Rear collisions.....	26
Butting collisions.....	10
Crossing collision.....	1
DERAILMENTS:	37

Broken rail.....	19
Broken wheel.....	14
Broken axle.....	6
Broken bridge.....	7
Loose wheel.....	1
Spreading of rails.....	2
Wash-out.....	1
Land-slide.....	3
Snow.....	3
Accidental obstruction.....	3
Misplaced switch.....	3
Unexplained.....	37
BROKEN WHEEL NOT CAUSING DERAILMENT.....	4
BROKEN CONNECTING ROD.....	9
Total.....	149

Three collisions were caused by trains breaking in two; two by misplaced switches; three by mistakes in orders; one each by carelessness in side-tracking cars, by a flying switch, by fog, and by derailment of a train. The number of collisions was remarkably small in proportion to the whole number of accidents, being hardly one-fourth.

There were 65 accidents traceable to defect or failure of road or equipment; seven to the elements directly; three to unavoidable accidental obstructions; 87 to carelessness or defects of management, and 37 were unexplained.

A division according to causes of accidents is as follows:

Accidents:	Collisions.	Derailments.	Other.	Total.
To passenger trains.....	3	43	9	55
To a pas. and a freight.....	11	56	4	71
To freight trains.....	23	58	4	85
Total.....	37	99	13	149
Casualties:				
Killed by.....	11	13	3	27
Injured by.....	58	190	5	253
Total.....	69	203	8	280

It may be noted that an unusually large proportion of the injured were slight injuries, and that there were not many very serious casualties.

There were 75 accidents in daylight; 85 in darkness, and the time of nine is not definitely stated. The number in daylight is rather below the usual proportion.

The great number of accidents is so evidently due to the severe weather and frequent storms of the month as hardly to require further comment than a mere statement of the fact. Blocked tracks, heavy snow and ice and their usual

accomplishments were the rule, and breakages of iron in the track, or in wheels and axles, were constant. The number of unexplained derailments is probably due to poor condition of tracks, which, in many cases, is unavoidable, while in some it may be due to an unwise economy. It is likely that American roads generally have not been in so poor a condition for years as they are this spring, and heavy track expenses will be the rule for several months to come.

For the year ending with February the record is as follows:

	Number of accidents.	Killed.	Injured.
March.....	65	9	33
April.....	71	11	45
May.....	46	30	107
June.....	58	15	77
July.....	78	21	100
August.....	113	40	214
September.....	124	15	54
October.....	120	69	137
November.....	145	40	165
December.....	135	29	141
January.....	223	30	182
February.....	149	27	253
Totals.....	1,324	345	1,508
Total, same months, 1879-80.....	835	174	643
1878-79.....	790	207	813

The averages per day were, for the month, 5.32 accidents, 0.96 killed and 0.04 injured; for the year, 3.63 accidents, 0.94 killed and 4.13 injured. The average casualties per accident for the month were 0.181 killed and 1.698 injured; for the year they were 0.261 killed and 1.139 injured.

Contributions.

The Requirements of an Automatic Coupler.

TO THE EDITOR OF THE RAILROAD GAZETTE:

An editorial in the March number of the *National Car-Builders*, after referring to the question of the delegation of authority to the Master Car-Builders' Association to determine standards for parts of draw-bars for freight cars, and to determine their adoption, remarks:

"The members of the Association, glad to have an opportunity at last to correct the evils so long complained of, would in the first place grapple with the draw-bar and coupler problem in its mechanical aspect purely, irrespective of patents and royalties."

The mechanical aspect of the coupler question would seem to be the perfect connection of the cars with the greatest simplicity of parts combined with perfectly automatic action, and perfect action in a coupler would be found in one that would always couple with the action of the engineer in bringing the cars together, without any previous adjustment of parts by the brakeman, and uncouple at the will of the brakeman without his going between them. A perfect connection of the cars with the greatest simplicity of parts would, at first thought, seem to be found in two hooks locking together; but the fact that to lock they must be movable, so as to slide by the locking projection, and the fact that to be movable requires the use of springs, both to allow the hooks to yield in passing the locking projection and to force them together when they have passed that point, and the fact that springs always require other pieces to hold them show that this form, in place of being simple, is complicated and unreliable. Perhaps the most simple form is shown in a fast hook projecting from each end of the car over which a link would be placed, forming a perfect connection for pulling. An improvement on this form, namely, using chains in place of a link and fastening one to every hook, so that it would hang in under the hook, and when the cars came together one of them could be raised up and placed over the opposite hook, is a great advancement, as a coupler must have all parts permanently fastened to insure their always being in condition to couple. A further improvement is the use of a fast bail in place of the chain. In operation the bail is turned up above the hook so as to lean back against the car before the cars come together, and the shock of the cars striking causes the bail to fall over the opposite hook. These two forms have been introduced all over Europe, but owing to the fact that it is difficult to couple the long locomotive draw-bar which extends over the pilots in use in this country to a hook, their use has been restricted here to some of the roads in Pennsylvania and Massachusetts.

If the bail would raise itself up when approaching a car and place itself over the hook, then we would have an automatic coupling. To make it do that, we must find some force within itself to lift it, and while we cannot get a direct upward force that will make the bail raise itself above the hook, yet by meeting one force with an opposing force the resultant can be made to create upward motion. We find the law that if two objects approaching each other on the same plane strike there will be no change of direction out of that plane; but if the two forces are inclined either above or below the horizontal line, a resulting force either up or down will be generated, depending for its power upon the angle at which the forces meet and their original power. To secure the benefits of this law in construction, we must place the bail so that it will always be in an inclined position, with its front end projecting beyond the hook, and as we want it to go up we will have its front end highest. This would be obtained by making lugs upon the side of the hook upon which the bail would rest, the position of the lugs governing the incline of the bail. In operation, when two cars come together and the front ends of the bails met, they would rise up until the shock of the dead-woods or draw-bars meeting would separate them, and the force of gravity would cause the lowest to fall and catch over the opposite hook.

This principle would only apply to those cases in which the cars meeting were of the same height, for if they varied in height the ends of the bails instead of striking each other

would pass by and strike the opposite hook. In this case, to insure the bails rising we would have to combine two other mechanical principles, namely, the inclined plane and the angle of friction. These principles teach that when a force strikes an opposing surface at an angle greater than the angle of friction, motion along the inclined surface will be the result. A practical application of this law would be to make the hook from top to bottom, along its centre line, with one continuous backward and upward inclined face. In operation, the bail striking this inclined face would slide up it to the top of the hook, and then drop over and back of it.

To arrange for the uncoupling we must find some force that will not only lift the bail from behind the hook, and hold it up, but throw it out ahead of the back of the hook when the cars separate, and then disappear so as not to interfere with another coupling and yet be ready to perform another uncoupling. To carry out this plan it is first necessary to get force to raise the bail. I can think of none but a brakeman, whom I am obliged to employ. But to hold the bail up we can use the principles of the truss in which the tie-rod varying in length is formed by the abutments created by the resistance of the cars to motion. The bail will form one rafter, and a rod attached to the back part of the hook and having a deep bowl-shaped crotch in the outer end to catch the bail will act as the other rafter. If the tops of the two rafters are held together, which will depend upon their weight and the depth of the crotch, they cannot drop until the tie is pulled apart, when in descending each rafter will be forced toward its own abutment.

In construction, the rafter which the brakeman raises must have a crotch larger than the diameter of the bail and of over a half circle, and should have the lower blade of the crotch longer than the upper, and the distance from the foot of the rafter to the back of the crotch must not be over one-quarter of the diameter of the iron composing the bail, less than the distance from the foot of the rafter to the inside of the top of the hook. In operation the brakeman pulls some mechanism running to the sides of the car, which will raise the rafter, raising the link on top of it until stopped by the long lower arm of the crotch. The bail would then be retained, resting by its weight in the crotch, and as the total length of the rafters is greater than the length of the tie rod, so, as that lengthens by the cars separating, the horizontal length of the rafters increase, and the ridge would lower until it was upon the top of the hook. As the rafter formed by the bail could go no further down, it would be drawn off from the hook by the cars continuing to separate, and the bail would drop to its natural position.

I think the principles and the construction which we have outlined would, in practice, be found to make a perfect self-coupler. There however, remains the draw-bar problem and the connection to common draw-bars to be provided for. These questions I will not attempt to solve. G. F. A.

The Invention of Fish-Plates.

WALFORD MANOR, SHREWSBURY,
ENGLAND, March 24, 1881.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Referring to your paper of March 11, I note that Mr. Holley names my late father, Mr. William Brydges Adams, as the patentee of the angle fish-plate.

Permit me to remind your readers that Mr. Adams was not only the patentee of that particular form of fish-plate, but was also the original inventor and patentee of all rail fish-plating. W. A. ADAMS.

British Board of Trade Inspections.

It is quite clear to "those who know" that one of the consequences of the Tay Bridge catastrophe will be a notable increase in the powers delegated to the Board of Trade officers respecting the inspection of bridges, and the general control which they exercise over works carried out by civil engineers. At one time the prospect of such a contingency would have created a scare throughout the profession, but at the present time we think few leading engineers look upon the government inspectors other than as tried colleagues whose experience and skill have often enabled them to detect and guard against some element of danger which had escaped the observation of the engineering staff. Not longer than thirty years ago the Institution of Civil Engineers, through their present Honorary Secretary, Mr. Charles Manby, protested officially against "the attempt to introduce the system of centralization and of government supervision, which was found to be so pernicious in continental states, and the employment of officers who possessed skill for their own peculiar military duties, but who were placed in a false position when they were entrusted with the execution and control of civil works of which their previous pursuits precluded their obtaining a practical knowledge." To show that times have changed, and engineers with them, it is only necessary to recall the composition of the Court of Inquiry on the Tay Bridge accident, where the association of Colonel Yolland, R.E., the senior inspecting officer of the Board of Trade with Mr. W. H. Barlow, F.R.S., the President of the Institution of Civil Engineers, was universally accepted without comment as the most proper and fit combination which could have been arranged.

The growth of the powers of the inspecting officers during the past thirty years has been slow but uninterrupted. Every now and then an accident of a recurring type has suggested the expediency of some modification in construction or working which has been embodied in the "Memorandum of Important Requirements" issued by the Board of Trade, and so brought under the attention of the constructive engineer. America is now the only country where an unequalled government supervision and control, and as probably this state of affairs will not continue long it may be of interest to our American readers to explain in some detail what are the present functions of Board of Trade Railway Inspectors in this country.

On notice of the intention to open a railway being given, certain tables and drawings have to be sent to the Board of Trade.

* Proceedings Inst. C. E., vol. ix., page 287.

These comprise particulars of the gradients, curves, cuttings and banks, bridges and viaducts, level crossings, tunnels, culverts, permanent way, fences, drainage, stations and junctions. Drawings in detail of all bridges and viaducts, either over or under the railway, with sufficient information to allow of the probable strength being ascertained by calculation, have in all instances to be forwarded, and the ten days intervening between the submission of the documents and the inspection of the line, affords the inspecting officer the necessary time for roughly checking the strength of these structures.

When fixing the day for inspection the Board of Trade officer—always a Royal Engineer—usually notifies to the Secretary of the company the preparations which he desires to be made for his visit. Thus he will have informed himself of the length of the greatest span occurring in any of the bridges, and will ask for as many of the heaviest locomotives in use as may be necessary to entirely cover the said span. If two locomotives and tenders are sufficient he will require them to be coupled funnel to funnel, and will possibly ask that a plank or seat of some kind be fixed over the buffers to enable him to ride instead of walk over some portions of the line, and yet be sufficiently near the rails to make sure that no defect in permanent way or formation escapes his attention.

On arrival on the ground the first thing engaging the attention of the "Colonel" or "General" will probably be the signaling of the station or junction. He will see that "home" and "distant" signals for each direction are supplied, and that there are the proper signals for the sidings. The requirements at junctions are thoroughly and generally understood, but unless the engineer has taken the precaution of submitting the plans of his stations and sidings to one of the inspectors previous to putting them into execution he not infrequently finds himself called upon to effect some modification in the arrangement. General principles are laid down, such as that all signals be weighted to fly to "danger" if the rod or wire breaks; that the points be free to move only when the signals are at danger, and the signals be immovable until the points are set right for the train to pass; that no two conflicting signals be capable of being exhibited at the same time, nor the points be movable after a signal has been lowered; that facing points be provided with an apparatus which will insure the points being in their proper positions before the signals are lowered, and prevent the signalman from shifting the points whilst a train is passing them, and that every signalman be able to see the arms and lamps of his "home" and "distant" signals from his box. The manufacture of signaling apparatus is a *specialité* in the hands of but a few firms, and as their managers and foremen are in the habit of constantly meeting with the government inspectors, the requirements of the latter are thoroughly understood, and it is very seldom, indeed, that there is occasion for fault to be found with the locking arrangement if the general scheme of the junction or sidings meets with approval. More than one set of facing points on each line of rails are not allowed except under unavoidable circumstances, and sidings must never commence or terminate by a junction with the main line, but have "dead ends," with the points closed against the passenger lines and interlocked with the signals, so that a runaway vehicle cannot foul the main lines. If a station is by necessity on a steeper gradient than 1 in 260, special arrangements are required in the way of "catch" points and other matters. Platforms must not be less than 1 ft. 9 in. high, preferably 2 ft. 6 in., and terminate with slopes at each end. Columns must be at least 6 ft. from the edge of the platforms, and if any bridges occur near the stopping places high parapets are required to prevent passengers falling over them in the dark. Many other little details suggested by numberless coroners' inquests and official inquiries, receive the attention of the royal engineer inspectors, and it must be obvious to all that an inspection so conducted can result in nothing but good to the engineer himself as well as to the company and to the public.

Considerable latitude is allowed regarding the permanent way, provided the rails be properly fixed, and the chairs weigh not less than 36 lbs. on branch lines with light traffic, and 30 lbs. on main lines. Where flat-bottomed rails are used, a fang bolt is required at each end, and at one intermediate point, to fasten the rail to the sleepers. No size is specified for the latter, and indeed in a recently opened line in Cornwall stone blocks are used as sleepers, and the government inspector granted his certificate "with pleasure," for, contrary to expectation, the well fl-ched rail secured to the stone blocks by dog spikes driven into plugged holes proved remarkably quiet and smooth under traffic.

Equal latitude is allowed regarding bridgework, the only restrictions being that in a cast-iron bridge the breaking weight of the girders shall not be less than three times the dead load plus six times the live load, and that in a wrought-iron or steel bridge the strains shall not exceed 5 tons and 6½ tons per square inch respectively. In the instance of steel, however, a certificate is required as to its quality.

Before the day of inspection the Board of Trade officer, as already explained, will have satisfied himself that the preceding conditions have been complied with, and it only remains for him to test each bridge and note the deflection under the weight of the engines accompanying him. In small bridges the deflections are usually taken by holding together a couple of light deal rods, the upper one of which presses against the underside of the girder and the lower one against the ground. The inspector marks a pencil line on these rods where they lap on each other, and then bringing the engines slowly on to the bridge marks another pencil line in the new position. The distance between the lines or the extent of sliding of the rods on each other indicates of course the deflection of the girder. In the case of large spans a level is more generally used, but in all instances every girder on the line is generally tested by the government inspector himself, both with the dead weight of the locomotives and with the latter traversing it at speed. If any undue deflection or vibration be observable the engineer may be called upon to brace or otherwise strengthen his bridge.

It will be clear to others than engineers that such a mode of procedure, though good as far as it goes, entirely fails to protect the public against the erection of cheap and dangerous bridges. Provided a sufficient quantity of iron be used any rubbish will pass muster, for mere puddle bars built up into girders would show as little deflection as high-class iron, though they might snap like cast-iron under a blow. Rolled joists of the cheapest Belgian manufacture, as ordinarily used by speculative builders, will frequently break with considerably less than an inch deflection, while others of the same dimensions will fail to break under a foot deflection. The government inspector requires no guarantee that the bridges he is passing have not been let by some jobbing iron merchant to the cheapest bidder, and it is no matter for surprise therefore that bridges so passed often require subsequent attention. An engineer is naturally reluctant to scatter inspectors over the country to look after perhaps half a dozen little bridges being built in half a dozen widely separated towns, and some trifling outside pressure such as the Board of Trade could apply is therefore desirable. We see no reason why an engineer should not be called upon to send in, not merely a drawing of each bridge, but the name of the

manufacturer and a certified tested sample of the iron which it is guaranteed has been used in the structure. One or two of the more important clauses in the specification should be written on the drawing sent to the Board of Trade, and it would tend to good workmanship if the government inspector made a couple of men with cold-chisels and hammers accompany him on his inspection and order them to cut out a few rivets here and there so as to satisfy himself that the bridge was not merely a nicely painted but a solidly constructed work. If the opening of one or two "contractor's" lines were delayed a month or so whilst the bridges were being overhauled and made good, we should hear less of rotten iron and bad workmanship. The same remarks apply to the permanent way. Mere weight of rail or chair is no guarantee of security, especially in these days of steel, when a bad rail may fly into half-a-dozen pieces and lead to the death or mutilation of as many passengers. The government inspector can ascertain for himself the manufacturer's name, for it will appear on the rail, but he should know the tests specified for the rails, and the engineer might reasonably be called upon to certify in his return to the Board of Trade that these tests had been applied in the presence of himself or his agent. Rejected steel rails are often cheap, but seldom safe, and every care, therefore, should be taken to protect the public against the use of such rails in financially weak contractor's lines.

Doubtless before long the Board of Trade, emboldened by the success which, in all probability, will attend their efforts to compel the companies to employ continuous brakes, will issue a new and extended set of "recommendations" respecting railway bridges. It is understood that at present the inspecting officers are agreed that guard rails shall be fixed outside each rail on all viaducts, as is the American practice, that the floor between these rails shall be strong enough to sustain a derailed engine, and that where the girders are underneath the platform they shall be spread wider apart than the centres of the rails. Probably before the amended recommendations are issued to the public further additions of the kind indicated by us may be incorporated in the document.—*Engineering.*

Railroads and Railroad Concessions in Mexico.

The following statement, which is taken from the Boston *Herald* of April 4, will be of interest to many persons at the present time:

The appended statement of the various railroad concessions under which railways are now building, or are about to be built, in Mexico, is official, and may be relied on as the most complete presentation of railroad progress in Mexico which has yet been made. In the statement the abbreviation "kil." stands for kilometre, one kilometre being equal to .62135 of an English mile, "S. G." stands for standard gauge, and "N. G." for narrow gauge. "Con." stands for the party to whom the concession has been granted. The concessions are embraced between August, 1877, and February, 1881.

National Railroad from Tehuacan to La Esperanza. S. G. Con., general government. Date of concession, Aug. 1877. Length, 50 kils. Total cost, \$298,500. Completed.

Celaya to Leon and Guanajuato. N. G. Con., state of Guanajuato. Date of concession, Dec. 1877. Length, 125 kils. Built, 60. Subvention per kil., \$8,000. Total subvention, \$1,000,000.

Mexico to Toluca and Cuautitlan. N. G. Con., an anonymous company. Date of concession, Dec., 1877. Length, 120 kils. Built, 46½. Subvention per kil., \$8,000. Total subvention, \$832,000.

Salamanca to the Pacific coast. N. G. Con., state of Michoacan. Date of concession, Jan., 1878. Length, 660 kils. None constructed. Subvention per kil., \$8,000. Total subvention, \$5,280,000.

Ometusco to Pachuca and Tulancingo. N. G. Con., state of Hidalgo. Date of concession, Feb., 1878. Length, 92 kils. Built, 25. Subvention per kil., \$8,000. Total subvention, \$736,000.

San Luis Potosi to Tantoyuca. N. G. Con., state of San Luis Potosi. Date of concession, Feb., 1878. Length, 209 kils. Built, 6. Subvention per kil., \$8,000. Total subvention, \$1,673,000.

Lagos and Guadalajara to San Blas. N. G. Con., state of Jalisco. Date of concession, Feb., 1878. Length, 737 kils. Built, none. Subvention per kil., \$8,000. Total subvention, \$5,896,000.

Celaya to San Juan del Rio. N. G. Con., state of Queretaro. Date of concession, Feb., 1878. Length, 104 kils. Built, none. Subvention per kil., \$8,000. Total subvention, \$832,000.

Tehuacan to Puerto Angel through Oaxaca. N. G. Con., state of Oaxaca. Date of concession, March, 1878. Length, 519 kils. Built, none. Subvention per kil., \$8,000. Total subvention, \$4,152,000.

Vera Cruz to Alvarado. N. G. Con., state of Vera Cruz. Date of concession, March, 1878. Length, 132 kils. Built 9. Subvention per kil., \$8,000. Total subvention, \$1,056,000.

Tantoyuca and boundary of the states of San Luis and Tamaulipas. N. G. Con., state of Tamaulipas. Date of concession, March, 1878. Length, 105 kils. Built, none. Subvention per kil., \$8,000. Total subvention, \$840,000.

Mérida to Peto via Ticul and Tekax. N. G. Con., state of Yucatan. Date of concession, March, 1878. Length, 126 kils. Built, 10. Subvention per kil., \$8,000. Total subvention, \$756,000.

Zacatecas to San Luis, Aguas Calientes and Lagos. N. G. Con., states of Zacatecas, San Luis, Aguas Calientes and Jalisco. Date of concession, March, 1878. Length, 448 kils. Built, 6½. Subvention per mile, \$8,000. Total subvention, \$3,854,000.

Port of Manzanillo to Tonila. N. G. Con., state of Colima. Date of concession, March, 1878. Length, 104 kils. Built, none. Subvention per kil., \$8,000. Total subvention, \$832,000.

Mexico to the shore of the Amacuzac. N. G. Con., state of Morelos. Date of concession, April, 1878. Length, 395 kils. Built, 96. Subvention per kil., \$8,000. Total subvention, \$3,160,000.

Matamoros Izucar. N. G. Con., state of Puebla. Date of concession, May, 1878. Length, 57 kils. Built, 11. Subvention per kil., \$8,000. Total subvention, \$456,000.

San Martin Texmelucan. S. G. Con., general government. Date of concession, November, 1878. Length, 37 kils. Built, 2. No subvention.

Cuautitlan to Salto. N. G. Con., the Toluca Company. Date of concession, April, 1879. Length, 63 kils. Built, 33. Subvention per kil., \$7,000. Total subvention, \$441,000.

Tehuantepec. S. G. Con., Edward Learned. Date of concession, June, 1879. Length, 200 kils. Built, 5. Subvention per kil., \$7,500. Total subvention, \$1,500,000.

Matamoros to Monterey. N. G. Con., state of Tamaulipas. Date of concession, June, 1880. Length, 400 kils. Built, none. Subvention per kil., \$8,000. Total subvention, \$3,200,000.

Mexico to Acapulco. N. G. Con., state of Guerrero. Date of concession, June, 1880. Length, 465 kils. Built, none. Subvention per kil., \$8,000. Total subvention, \$3,720,000.

Chihuahua to Villa del Paso or to Villa Ojinaga. N. G. Con., state of Chihuahua. Date of concession, July, 1880.

Length, 350 kils. Built, none. Subvention per kil., \$8,000. Total subvention, \$2,800,000.

Patzcuaro to Morelos and Salamanca. N. G. Con., state of Michoacan. Date of concession, July, 1880. Length, 169 kils. Built, none. Subvention per kil., \$8,000. Total subvention, \$1,352,000.

Culiacan to the port of Altata and Durango. N. G. Con., state of Sinaloa. Date of concession, August, 1880. Length, 440 kils. Built, none. Subvention per kil., \$8,000. Total subvention, \$3,520,000.

Anton Lizardo to Huatulco and Puerto Angel. N. G. Con., state of Oaxaca. Date of concession, August, 1880. Length, 450 kils. Built, none. Subvention per kil., \$8,000. Total subvention, \$3,600,000.

Jalapa to San Andres Chalchicomula. N. G. Con., states of Puebla and Vera Cruz. Date of concession, September, 1880. Length, 80 kils. Built, none. Subvention per kil., \$8,000. Total subvention, \$640,000.

San Augustin to Huehuetoca. N. G. Con., state of Hidalgo. Date of concession, September, 1880. Length, 50 kils. Built, none. Subvention per kil., \$8,000. Total subvention, \$400,000.

Central International & Interocceanic (Boston company). S. G. Con., limited company, represented by S. Camacho and R. Guzman. Date of concession, September, 1880. Length, 2,435 kils. Built, 54. Nearly ready, 24 kils. additional. Subvention per kil., \$9,500. Must build within 1 year 3 months and 22 days, 354 kils. Time allowed for construction, not counting first year, 9 years 7 months 22 days. Sum which the government must pay in one year from the date of concession, \$600,000. Total subvention, \$23,132,500.

Mexican National Construction Co. (Palmer & Sullivan). N. G. Con., company represented by Palmer & Sullivan. Date of concession, September, 1880. Length, 1,043 line to frontier, 915 line to Pacific. Built, none. Preparatory work being rapidly pushed. Subventions, per kil., to Pacific, \$7,000; to United States, \$6,500. This company must build 450 kils. every two years. It is allowed four years, not counting first year, to reach the Pacific, and seven to reach the United States line. Total subvention, \$13,184,500.

San Martin to the FC of Hidalgo Tlaxcala. N. G. Con., state of Tlaxcala. Date of concession, September, 1880. Length, 65 kils. Built, none. Subvention per kil., \$8,000. Total subvention, \$520,000.

Puebla to San Marcos. N. G. Con., state of Puebla. Date of concession, September, 1880. Length, 51 kils. Built, none. Subvention per kil., \$8,000. Total subvention, \$408,000.

Mérida to Kalkini and Celestun. N. G. Con., state of Yucatan. Date of concession, September, 1880. Length, 142 kils. Built, none. Subvention per kil., \$6,000. Total subvention, \$852,000.

Sonora (Guaymas to northern frontier). S. G. Con., limited company represented by S. Camacho and D. Ferguson. Date of concession, September, 1880. Length, 457 kils. Built, 90. Subvention per kil., \$7,000. After first year this road must be constructed at the rate of 200 kils. in two years. Total subvention, \$3,199,000.

Patzcuaro to the Pacific. N. G. Con., state of Michoacan. Date of concession, September, 1880. Length, 342 kils. Built, none. Subvention per kil., \$8,000. Total subvention, \$2,736,000.

Toluca to the mine of Ixtapa del Oro. N. G. Con., Jose Maria Amat. Date of concession, Nov., 1880. Length, not stated. No subvention.

Link uniting the Morelos and Mexican. N. G. Con., state of Morelos. Date of concession, Nov., 1880. Length, not stated. Subvention \$6,500 per kil.

Coal Lands Railway, from Rio Yaqui to the Morrito. S. G. Con., Robert R. Symon. Date of concession, Dec., 1880. Length, not given. No subvention.

Mérida to Valladolid. N. G. Con., Francisco Canton. Date of concession, Dec., 1880. Length, 160 kils. Built, none. Subvention per kil., \$6,000. Total subvention, \$960,000.

Jalapa to Vera Cruz. N. G. Con., Ramon Zangroniz. Date of concession, Jan., 1881. Length, 114 kils. Built, none. Subvention per kil., \$8,000. Total subvention, \$912,000.

Salto to Maravatio via Tepeji and Jilotepec. N. G. Con., Pedro del Valle. Length, not given. Subvention, \$8,000 per kil.

San Luis Potosi to the Mexican Central at Aguas Calientes. N. G. Con., states of San Luis and Aguas Calientes. Date of concession, February, 1881. Length, 150 kils. Built, none. Subvention per kil., \$8,000. Total subvention, \$1,200,000.

Estacion company and town of Tlalmanalco. Con., state of Mexico. Date of concession, February, 1881. Built, none. Length, not stated. Subvention per kil., \$6,000.

NUMBER OF KILOMETRES BUILT.

The following shows the number of kilometres of railway already constructed in Mexico:

Railways.	Kilometres.
Medellin.....	22,000
Vera Cruz.....	423,750
Puebla branch.....	47,000
Jalapa branch.....	114,000
Mérida & Progreso.....	34,000
Tehuacan.....	51,000
Celaya & Leon.....	60,000
Toluca & Cuautitlan.....	84,299
Ometusco & Tulancingo.....	25,000
San Luis Potosi.....	6,000
Vera Cruz & Alvarado.....	9,000
Zamora & Jacana.....	5,000
Mérida & Peto.....	12,000
Zacatecas & San Luis.....	6,500
Morelos.....	98,000
Matamoros & Izucar.....	11,000
San Martin Texmelucan.....	2,000
Tehuantepec.....	5,000
Central.....	54,000
Sonora.....	30,000

Total kilometres 1,097,549

That is, about 682 English miles of railroad already built.

Eastern Terminal Charge in Immigrant Tickets.

The following, a portion of a letter published in the Chicago *Tribune* of April 4, gives the arguments which the Western railroads use against paying an arbitrary New York terminal charge on through immigrant rates to the West, as also a discussion of the general question of paying commissions to agents:

Let us now consider the main question at issue between Eastern and Western lines on its merits, and by the light thus evolved give the cue to prophecy concerning the ultimate fate of this movement of the Western lines. Has it ever occurred to the gentlemen at the helm of the Eastern trunk lines, or to the sagacious class of gentlemen who sell tickets, that the logic of events has greatly changed the condition of affairs since the adoption of their plan of making money out of the transportation business, requiring a subsidy for doing that which is a part of their legitimate

duty, and by doing which they enable their constituents to make money out of the work they are employed to do!—in the case of railway companies, by attracting business through facilities afforded for cheapness or comfort, saving the repurchase of tickets, whereby the cost of the journey may be increased on long lines.

The "Interested Looker-On" has given one reason why the great allowance made by Western to Eastern lines for "terminal expenses" of doing actual foreign emigration business should cease—viz., the great reduction in rates of transportation on Western roads. That is sufficient, *per se*, but there must be added the fact of the vastly superior equipment of Western roads, and that it will not do to keep "Cheap John" conveyances for this class of travel, because there is not enough of it to warrant a distinct class of cars therefor; and, in connection therewith, that it is nothing but a fraud upon Western lines to insist upon or even ask them to allow people odorous of the sea, for whose passage not over a moiety of the local second-class fare is paid, to have the same accommodations as the full-paying second-class passengers. Now, in the matter of commissions to agents for the sale of tickets, the novelty of the thing at first justified some inducement to agents to become acquainted with more of geography than was embraced in the limits of their own bailiwick, and to learn about time and connections so as to give correct information to travelers.

In the days when commissions were first paid there were no condensed time-tables or through trains. All over the country, at the windows of the principal ticket-offices, the agents were the only oracles who could be consulted. Then, too, the West was a terra incognita to nearly all Eastern people, and the Western railways were mostly as insignificant in national fame as a ward politician beyond his little precinct. There were no traveling agents ready to furnish all needed information, and attend to those intending to travel by arranging in advance for their comfort and rapid transit. In short, the whole railway system is so altered that there is neither rhyme nor reason in asking or expecting one railway company to pay the agents of another company for what it is for the express advantage of the employing company to have their said agents do. Again, ticket agents in those days were paid much less than now by their employers. Furthermore, all commissions accomplish now is neutrality.

So much concerning the usefulness of paying commissions for the purposes which induced the practice to be inaugurated. We turn now to note their positive injury to the companies permitting their agents to receive them. This consists in their demoralization as to attention to local passengers. Let two persons approach the ticket window of the average coupon ticket agent of the period—one to buy a local ticket over the whole length of the road perhaps, but for the sale of which there is no commission, while the other wants a coupon ticket to some distant point, reached possibly via a junction half way over the agent's employer's road, but for the sale of which some company beyond his own line pays him a dollar—and see which will get waited on first and bask in the smiles of the agent the most easily. The agents are not at fault for this; they would be more than human if they resisted the temptation or the good nature awakening properties of the mighty dollar. The fault is in their employers and not themselves that they are situated so as to make a foreign company's dollar look so large to them. The remedy for the commission evil to the agents of foreign companies is of the homeopathic nature, each company paying its own agents a reasonable commission, to increase the sale of local, as well as on the company's proportion of a foreign ticket, but so graded as to make the local ticket rank in importance, and prohibiting the receipt of foreign subsidies. If all roads adopted this plan there would be no subsidizing the agents of other roads, of course, by even the most reckless. The points herein so imperfectly set forth are beginning to be considered by thoughtful men in the railway service.

The Western Trunk Lines Passenger Association has accomplished but a very small proportion of the beneficence within the scope of its possibilities. When it has broken up the pernicious system of throwing away the money of the owners of Western roads, by paying it out to enrich Eastern roads or their agents, without thereby increasing the volume of general travel one iota, it will have reached the culmination of its good work. People who have resolved to emigrate and settle for life in some other region, or have the prospecting fever, will not be deterred from going West by a few dollars difference in the amounts Western roads receive for their transportation, especially if the emigrant does not receive the benefit of that difference.

The field of usefulness of such an organization as the Association in question, if wisely managed, is continental in its range. Let it take up the different points fairly within its line of work, step by step, as each step is secured.

The evident deduction from the premises is that the principles aimed at by the Association are eminently sound, and must and will prevail in the end. If the gentlemen at the head of the passenger departments of the several roads therein at this date have not character and capacity to demonstrate to the seceding party that it was bad policy—the course pursued to make himself "solid" with the parties whose éclat seemed of more account to him than the establishment of a just, conservative, and business-like conduct of passenger traffic—they will prove significant and stupendous failures. "The signs of the times" are all propitious, and, if they do not take the "current when it serves," they should be made to feel that they are out of joint with the true interests of railway economy, which is being more and more expressed in the homely proverb, "a penny saved is as good as a penny earned."

The great army of railway shareholders are entitled to the benefit of the best efforts of every man fit to be in railway service, to accomplish the ends aimed at and within the power of the Association. The public demands it; success, the times are ripe for it, and the man representing a Western road who will put a straw in its way as a stumbling block, either by trickery, treachery or obstinacy, is not fit to head any department of the great industry so much in need of the good will and co-operation, together with the prosperity of every other factor of national welfare and greatness.

Let, then, no dogmatic, opinionated, selfish, or trivial individual mar the perfectly harmonious co-working of all the members for the great end sketched in this paper, but all strive as to who can best do and best agree in the grandest effort of the current railway age to so manage affairs as to make money for the property owners, save money to the public, and deal justly and generously with "the boys."

RAILROAD LAW.

Right to Condemn Land for Additional Tracks.

An important question was passed upon last week by the Pennsylvania Supreme Court in a case concerning the Philadelphia & Reading road. The real matter at issue was the power of a railroad company to lay sidings and turnouts in connection with its main tracks. Hiram S. Getz is the owner of a corner piece of property in Reading, lying near the tracks of the railroad. On it are erected extensive and costly buildings, with heavy machinery for sawing marble

into shafts and slabs. On the premises are also a large warehouse for storing the marble, a heavy derrick for unloading the blocks. The Reading Railroad, desiring to make connections with a large rolling mill near at hand, to construct certain sidings, were proceeding to raise the pavement of Getz to a level with their tracks, and to construct a branch track, when Mr. Getz and the lessee of the property commenced proceedings in equity. After several stages of litigation had been passed through, the Court below finally decided in favor of the railroad, on the ground that the railroad had a right under the law of domain to take the property upon giving a bond to pay whatever damages were assessed against it. The Supreme Court in affirming, in an opinion by Justice Green, said: "The grant of power to a railroad carries with it the right to construct turnouts, sidings, etc., and all necessary appendages." Justice Trunkley dissents from this opinion, saying: "Never before has such taking of private property in this state received judicial sanction, and I doubt if ever before a railroad company attempted it."

Rights of Stockholders to Intervene in a Foreclosure.

We are informed by Ex-Judge B. W. Huntington, of Counsel for the Respondents in the railroad case of Pratt, Executor, Appellant, vs. Munson and The Farmers' Loan & Trust Co., Respondents, that the New York Court of Appeals, affirming the judgment below, has just decided that the New York act of 1853, allowing stockholders to intervene *pro rata* upon railroad foreclosure purchases, has been repealed by subsequent legislation. The opinion has not yet been received, but the fact will impress the railroad world as being of great importance.

THE SCRAP HEAP.

Locomotive Building.

The Old Colony shops in Boston have just finished a heavy passenger locomotive and have another nearly ready for the road.

The Rogers Locomotive Works, in Paterson, N. J., is shipping a number of consolidation freight engines to the New York, Pennsylvania & Ohio road.

The Dickinson Manufacturing Co., at Scranton, Pa., is building several Mogul freight engines with 18 by 24 in. cylinders, for the Delaware & Hudson Canal Co.

Besides new works, the Grant Locomotive Works, in Paterson, N. J., are changing a number of locomotives from 6 ft. to standard gauge for the Erie.

The Manchester (N. H.) Locomotive Works have lately shipped a number of engines to the Northern Pacific.

The Portland Company, at Portland, Me., is building some engines for the Northern Pacific. Several have been shipped around Cape Horn for the Pacific Division.

Car Notes.

The Delaware & Hudson shops at Green Island and Oneonta, N. Y., are building 300 coal cars to carry 12 tons each.

The Erie Car Works, at Erie, Pa., have an additional order for 800 box cars for the New York, Pennsylvania & Ohio road.

The Concord Railroad shops in Concord, N. H., are to build 100 coal cars to carry 15 tons each.

The Gilbert & Bush Co., in Troy, N. Y., have just shipped three passenger cars and one drawing-room car to a narrow-gauge road in Brazil; 11 passenger and combination cars to Mexico, and 4 Tiffany refrigerator cars to Australia.

The Paige Wrought Metal Car-Wheel Co., which is shortly to begin the manufacture of the Paige wrought metal car-wheel on Hampden street, consists of W. H. Paige, D. D. Warren and Emerson Gaylord, of Chicopee. This wheel is constructed with a steel tire; and has two wrought metal side plates which are forced in by hydraulic pressure, being forced on to the hub at the same time. The metal of the tires is then turned down over the plates and they are also secured by 18 1/2-inch bolts around the tire and 6 1/2-inch bolts through the hub. The weight of these wheels is much less than that of corresponding sizes of chilled wheels, and they have given great satisfaction on the Connecticut River road and elsewhere.—*Springfield (Mass.) Republican*.

The Baltimore & Ohio shops are building 20 express cars for the road. They are 33 ft. long, are thoroughly fitted up and handsomely furnished.

James Harris & Co., at St. John, N. B., are building 80 flat cars for the Intercolonial road; also 6 passenger cars and a number of flat cars for the Grand Southern road.

The Eastern Railroad shops, at Salem, Mass., are building 8 new passenger cars for the road.

Bridge Notes.

The Leighton Bridge & Iron Works, at Rochester, N. Y., have just completed a wrought-iron lattice truss bridge over the Chippewa River, near Eau Claire, Wis., for the Chicago, St. Paul, Minneapolis & Omaha. It has six spans, four of 180 ft. each and two of 80 ft. each.

The Wrought-Iron Bridge Co., at Canton, O., is putting up an iron bridge over the Cuyahoga River at Kent, O., for the Connotton Valley road.

The Phoenix Iron Co., at Phoenixville, Pa., has the contract for the iron work for a new iron pier and landing at Coney Island.

Iron and Manufacturing Notes.

The Springfield Iron Co., at Springfield, Ill., has settled the difficulty with its employees, who have been out on a strike for three weeks, on about the same basis as was offered them before the strike. Work was resumed on Monday, March 28, in all departments of the company's works.

The French Spiral Spring Co., of Pittsburgh, has bought the entire business and works of the Culmer Spring Co. Improvements and additions are to be made to the already extensive facilities, giving the company very large facilities for the manufacture of springs both for cars and locomotives.

The rolling mill of the James River Steel & Mining Co., at Lynchburg, Va., is running on light iron rails.

The Phoenix Iron Co. has put its No. 2 furnace out of blast for repairs. No. 3 will be put in blast as soon as possible.

The ore beds on Chuckey River in Green County, Tenn., have been bought by a Northern company, which will build a blast furnace close by.

The Edgar Thomson Steel Co., the Lucy Furnace Co., and Carnegie Brothers & Co., owning the Edgar Thomson Works, the Lucy Furnaces and the Union Iron Mills, together with extensive coal and ore interests near and in Tyrone, including the Pennsylvania Furnace, have been consolidated, and entitled Carnegie Brothers & Co., limited, with Mr. T. M. Carnegie as President and Mr. D. A. Stewart as Secretary and Treasurer. The capital of the company is \$5,000,000, and the new arrangement goes into effect to-day.—*Pittsburgh American Manufacturer*.

The Southern States Coal, Iron & Land Co. has taken an order for the cast and wrought-iron work needed for the remodelling of the Alabama Furnace. Its foundry is turning out large quantities of car castings for railroad and furnace use.—*Chattanooga (Tenn.) Tradesman*.

The Rail Market.

For steel rails the quotations are about the same, say \$62 to \$65 per ton at mill, but lower prices are taken for winter deliveries. There is much pressure for early deliveries, which the mills are all too crowded to meet.

For iron rails there is much inquiry and many small sales, but no large transactions are reported. Prices are firm at about \$47 per ton at mill for heavy rails and \$51 to \$52 for light sections. English rails are somewhat lower.

Old iron rails are dull and lower. Sales are reported at \$27 to \$27.50 per ton in Philadelphia, but light sales are reported.

The Metric System.

At the annual meeting of the American Society of Mechanical Engineers, a resolution was offered, which is now submitted to the members for letter-ballot. The resolution is as follows:

"Resolved, That the Society deprecate any legislation tending to make obligatory the introduction of the metric system of measurement into our industrial establishments. Also, that the Secretary be instructed to communicate the sentiments of this resolution to any one concerned in procuring such legislation. And further, that a copy of this resolution be sent to the Anti-Metric Society of Cleveland, Ohio."

Studying American Railroad Methods.

A dispatch from London, April 5, says: "Four leading directors of the London & Northwestern Railway, accompanied by one of the company's managers, will start at an early date for the United States, where they intend to make a thorough inspection of the working of the American railway system, with the view of the introduction into England of some features in which American railways surpass the British system. The deputation will travel over all the principal trunk lines in the states, commencing their investigations at New York and concluding at San Francisco."

A New Arrangement of Yard Tracks.

The St. Paul Pioneer-Press says: "Mr. W. C. Van Horne, of the Chicago, Milwaukee & St. Paul Railroad Company, has planned a system of tracks and switches for the new depot of the Company in Chicago, which railroad men say is ahead of anything now in use, and certain to greatly facilitate business. The idea embodies two or more main lines running through the yard. Between them, and connecting them, there will be laid diagonally a large number of tracks, each constructed to hold 40 cars—the extreme limit of a freight train. Trains coming in on one of the main lines will run upon one of these diagonal tracks, and the engine will cut off and go to the house on the other main track. Thus, no matter how many trains arrive, up to the limit of accommodations provided, each one will stand upon its independent track, and can be pulled out in whole or in part without disturbing other trains, and two or more main tracks will always be clear of standing cars. Railroad men will see that the saving in time and wear of material will be very great."

ANNUAL REPORTS.

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Port Royal & Augusta.

This road extends from Port Royal, S. C., to Augusta, Ga., 112 miles. The following brief statement is for the year 1880.

Freight.	\$229,668
Passage.	48,045
Mail, express, etc.	31,921
Total (\$2.765 per mile).	\$309,634
Expenses (71.82 per cent.).	222,634
Net earnings (\$777 per mile).	\$87,000

The funded debt consists of \$250,000 first-mortgage 6 per cent. bonds and \$1,500,000 income bonds. Deducting interest on the first-mortgage bonds, the net earnings given would be enough to pay 4.8 per cent. on the income bonds, if all applied to that purpose.

Galveston, Harrisburg & San Antonio.

This company owns a line from Harrisburg, Tex., to San Antonio, 215 miles. The statement is for 1880.

Freight.	\$1,131,863.68	\$1,142,037.15	D.	\$10,173.47	0.9
Passage.	214,488.80	200,065.44	I.	13,823.36	6.8
Other.	46,537.78	47,067.74	D.	1,429.96	3.8
Total.	\$1,392,890.26	\$1,390,170.33	I.	\$2,219.93	0.2
Expenses.	593,725.33	571,803.60	I.	21,821.73	3.8
Net earn. per mile.	\$799,164.93	\$818,766.73	D.	\$19,601.80	2.4
Gross earn. per mile.	6,478.56	6,468.23	I.	10.33	0.2
Net earn. per m.	3,717.05	3,808.22	D.	91.17	2.4
Per cent. of exps.	42.62	41.84	I.	0.78	

During the year a branch has been built from Smith Junction to La Grange, 28 miles. It is now in use.

South Carolina.

This road includes a line from Charleston, S. C., to Augusta, Ga., 137 miles; Branchville to Columbia, 68 miles; Kingsville to Camden, 37 miles, making 242 miles. Mr. John H. Fisher, Receiver of the road, has made his report to the Court for the calendar year 1880.

The equipment consists of 44 engines; 18 first-class passenger, 4 sleeping, 12 second-class passenger, and 5 baggage, mail and express cars; 496 box, 14 stock, 97 flat and 30

caboose cars; 1 commissary, 2 officers' and pay and 6 shanty cars. Two of the locomotives are condemned.

The Receiver's account from Oct. 1, 1878, to Dec. 31, 1880, a period of 27 months, is as follows:

Total earnings.	\$2,641,006.93
Total expenses.	1,786,604.18
Net earnings.	\$854,432.77
Old balances, S. C. R. R. Co.	3,435.39
Interest and premium.	4,877.62
Total.	\$862,745.78
First-mortgage coupons to syndicate.	\$72,112.22
First-mortgage interest, commission, etc.	396,090.46
Legal expenses.	29,807.23
Taxes, 1877-78.	24,378.44
Balance, S. C. R. R. Co.	1,270.32
New equipment.	137,988.08
Track extension and wharf.	5,010.29
	965,257.04

Balance, Dec. 31, 1880. \$197,488.14

Expenditures in 1880 were largely increased by the heavy repairs to locomotives needed, and by the destruction of car shops and cars by fire, this loss amounting to \$22,709.94. Four locomotives and 170 freight cars were bought and 15 passenger cars bought or built to replace old ones burned or condemned. The passenger equipment is now very fair, but at least 100 more freight cars are needed. The equipment is in better order than for many years.

The Receiver has laid 78 1/2 miles of new rails, but at least 50 miles more are needed this year, as the old iron rails have, many of them, been down a long time and are now going very fast.

The traffic as reported was as follows:

Train miles:	1880.	1879.	Inc. or Dec.	P. c.
Passenger.	295,087	225,647	I.	70.040
Freight.	984,081	561,981	I.	123,000
Service.	199,284	155,498	I.	43,786
Total.	1,179,552	943,126	I.	236,826
Passengers carried.	161,519	124,915	I.	36,604
Tons freight carried.	326,086	251,005	I.	75,081
Ton miles.	37,877,804	29,001,568	I.	8,876,236
Per ton per mile:	2.50 cts.	2.80 cts.	D.	0.30 ct.
Expenses.	1.64 "	1.80 "	D.	0.16 "
Per train mile:				
Passenger, earning.	96.80 "	101.20 "	D.	4.40 "
expenses.	84.10 "	83.70 "	I.	0.40 "
Freight, earnings.	136.10 "	145.70 "	D.	9.60 "
expenses.	90.84 "	93.30 "	D.	2.40 "

The increase in passenger train mileage was due to the running of an additional train to connect with the Atlantic Coast Line. Freight train movement increased with the amount of business.

Receipts of leading articles of freight at Charleston were as follows:

	1880.	1879.	1878.
Bales cotton.	309,820	331,946	344,652
Barrels flour.	45,459	16,448	61,468
Bushels grain.	311,820	67,702	231,860
Barrels naval stores.	60,083	70,468	53,921
Head live stock.	14,000	13,050	12,500
Tons fertilizers from Charleston.	58,523	40,989	38,418

The increase in freight was in the heavier freights necessarily carried at low rates, which accounts for the decrease in the average freight rate. This average rate is still much higher than on most Western roads.

The division of freight earnings, including express, was as follows:

	1880.	1879.
From points beyond Charleston.	\$93,438.26	\$80,303.74
To points beyond Charleston.	53,237.57	47,797.65
From Charleston.	307,958.75	235,994.29
To Charleston.	415,714.57	375,193.14
Between local stations.	74,010.16	90,034.81
Total.	\$944,359.31	\$829,413.63

The decrease in business between local stations was expected, as that traffic was swelled in 1879 by unusual causes.

The increase in train expenses in 1880 was due to the heavy renewals of property required, and will probably continue through the current year.

The earnings for the year were as follows:

	1880.	1879.	Inc. or Dec.	P. c.
Freight.	\$931,956.43	\$819,067.62	I.	\$112,888.81
Passage.	251,465.44	201,938.00	I.	49,527.44
Mail and express.	31,832.77	27,520.05	I.	4,312.72
Other.	2,501.65	3,408.08	D.	906.43
Total.	\$1,217,756.29	\$1,052,023.75	I.	\$165,732.54
Expenses.	875,793.72	714,278.35	I.	\$161,515.37

Net earnings.	\$341,962.57	\$337,745.40	I.	\$4,217.17
Gross earn. per mile.	5,032.05	4,347.21	I.	684.84
Net earn. per mile.	1,413.07	1,395.64	I.	17.43
Per cent. of exps.	71.90	67.90	I.	4.00

This increase in expenses was entirely due to additional train service and to the extensive renewals of road and equipment. Large repairs were made on bridges, and the Wateree trestle is the only one now in need of rebuilding. There were laid last year 3,162 tons of steel rails and 87,450 ties. There are still 62 miles of old chair rails which cannot last much longer, and 4,500 tons of steel rails are needed this year.

Branchville station has been rebuilt and the Charleston freight yards improved. Several new water stations were built.

Four new freight engines were bought and two small ones condemned. Seven locomotives were rebuilt. The car equipment has been thoroughly overhauled and additions made as noted above. Most of the cars burned with the shops were old and needed rebuilding.

Utah Southern.

This road extends from Salt Lake, Utah, to Juab, 105 miles.

The income statement for 1880 is as follows:

Passengers.	\$81,374
Freight.	300,357
Other sources.	13,155
Total (\$3.760 per mile).	\$394,886
Expenses (44.9 per cent.).	177,308
Net earnings (\$2.072 per mile).	\$217,578
Balance from 1879.	29,404
Total.	\$246,982
Permanent improvements.	\$10,633
Interest on bonds.	130,340
Dividends.	90,000
Balance to 1881.	\$15,989

As compared with 1879 the gross earnings increased \$67,327, or 20.55 per cent., and the net earnings \$40,535, or 28.54 per cent.

The road is extended south of Juab by the Utah Southern Extension, a distinct corporation.



Published Every Friday.

CONDUCTED BY

S. WRIGHT DUNNING AND M. N. FORNEY.

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EDITORIAL ANNOUNCEMENTS.

Addresses.—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

Passes.—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

RAILROAD ENGINEERS AND AN ASSOCIATION OF SUPERINTENDENTS OF PERMANENT WAY.

It was proposed in these pages a few weeks ago* that an association of this kind should be organized, and the need of it to the extent that was then apparent was pointed out. Since then there has been some opportunity of discussing the subject with different railroad officers, and all to whom it has been presented are agreed that such an organization could be of great use in perfecting and improving the departments of railroad construction and operation which would be within its scope.

The proposal to form such an association was in a great measure a sequence to the suggestions contained in Mr. Holley's paper on rail sections read at the meeting of the Mining Engineers, because, as was pointed out in these pages, to secure the general adoption of a system of such sections it is essential that there should be some recognized authority to act on that and other similar matters.

Mr. Holley in his paper showed that the additional cost of rails due to the diversity of rail sections counts by millions of dollars. The importance of this fact is so great that we have found, in discussing the need of an organization of the kind indicated, that it has overshadowed all its other uses, and the impression left on the minds of many of those to whom the subject has been presented was that the purpose of such an association would be alone, or chiefly, to adopt standard forms for rails. It is true that such action is very important and would result in very great economy to railroad companies; but it would be only a small portion of the work which could and should be done by an association of the kind proposed, and therefore it has seemed that an article, indicating with more or less explicitness and fullness the scope and the ends which could be effected if the men who have charge of the railroad tracks in this

country could meet periodically and confer together, would be timely and might lead those most interested to realize the amount of useful work which could thus be accomplished.

It is of course true that a very important part of the work to be done would be that of establishing standard forms and proportions for rails, rail-fastenings, frogs, switches, etc., and more especially signals; yet this would be only a part of the useful result which would follow from the assembling together of the persons who have the charge of so important a department of railroads as that of the permanent way.

In the preambles and constitutions of the various associations of a similar character which are now in existence, the advantage of conferring together is nearly always recognized. Thus in the constitution of the old Western and Southern Railway Association its objects were said to be "the promotion and advancement of railway interests, by an interchange of views and ideas and by the comparison of experience."

The preamble to the constitution of the Master Mechanics' Association expresses the belief "that the interests of the companies by whom the members are employed may be advanced by the organization of an association which shall enable them to exchange information." In the second article of the constitution of the Car-Builders' Association it is said that its objects are, "to enable the members to exchange information as regards the best mode of constructing railway cars." The object of the recently organized American Society of Mechanical Engineers is declared to be "the promotion of the arts and sciences connected with engineering and mechanical construction, by means of meeting for social intercourse and the reading and discussion of professional papers."

It will be seen that in all these associations the idea of a conference and interchange of knowledge and experience is very prominent, and is regarded as one of the chief ends of their organization. In some of them the proceedings consist chiefly of papers on various subjects of interest to the members, which are contributed, read and discussed at the meetings. In others the work of investigation is carried on by special committees, who put the results of their researches into the form of reports. These are then discussed and commented on at the regular meetings. Each one of these features has special advantages, and they might all be employed in the investigation of the wide range of subjects which would present itself to the consideration of an association of engineers and superintendents of permanent way.

Probably few who will read this article will at first realize the number, variety or importance of the topics which would naturally come before an association of this kind for consideration, investigation and decision.

To recur again to the question of rail sections, it may be said that it is not easy to estimate the importance of the adoption of a system of standard forms for rails and rail fastenings. The extent to which it would facilitate the manufacture of rails Mr. Holley has shown very clearly.

Probably no one can foresee, though, what the effect of the general adoption of such standards would be on the business of rail-making. It is true, as Mr. Holley says, "the cost to railway companies of multiplying patterns is chiefly in one direction—it prevents rail-makers from keeping standard rails in stock. If rail-makers could roll and stock standard patterns, when special orders were slack they could prevent the excessive rise in prices which the scarcity of rails from time to time creates." It is probable, too, that if there were a recognized uniformity in the quality and shape of rails idle capital would be invested in their production, when there is little demand, in the hope of realizing a profit when they are needed. At present a person would run great risks who would invest say \$100,000 in any pattern of rails, when the mills have little to do and the rate of interest is low. When business revived it would not be at all certain that there would be a demand for the pattern or patterns of rails which were ordered as a speculation.

A recognized system of rail sections would also be of great use to the projectors of new roads. At present many of those engaged in such enterprises are profoundly ignorant of railroad construction. They are therefore obliged to depend upon the knowledge and judgment of their engineer to select or design a form of rail adapted to their road and its traffic. It is not every engineer who has had the special experience or has given the subject the amount of study which would qualify him to design a rail section properly. Such persons, as Mr. Holley says, often show a determination "to use no pattern that any other manager has invented, but to vary from all standard patterns for no reason whatever except to inflict their own individuality upon some feature of the interest confided to their

care." In doing this they sometimes devise patterns which are conspicuously inferior to those already in use. Since Mr. Holley's paper was read, the writer has seen an entirely new section designed by an engineer of a new road, which is very much inferior to a number of other sections of the same weight which he could have found in the catalogues of the rail-makers of the country. The designer had evidently never studied or observed the effect of the wear of the fish-plates on the under side of the heads of rails, and had provided a very inadequate bearing at that point. A standard system of rail sections sanctioned by a majority of the railroad engineers in the country would have an authority which in all probability would lead to its general adoption on all new lines, and also prevent the perpetration of some serious blunders by those who seek "to inflict their own individuality" on the shape of rails.

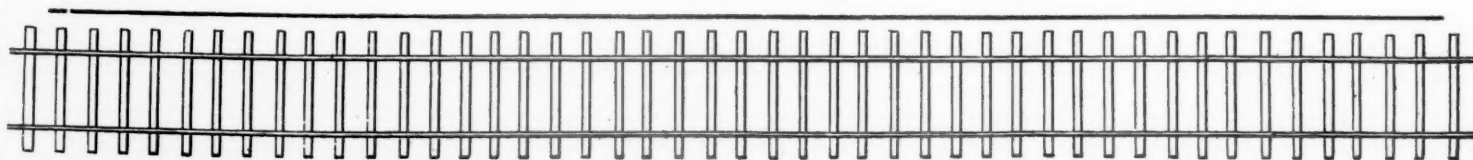
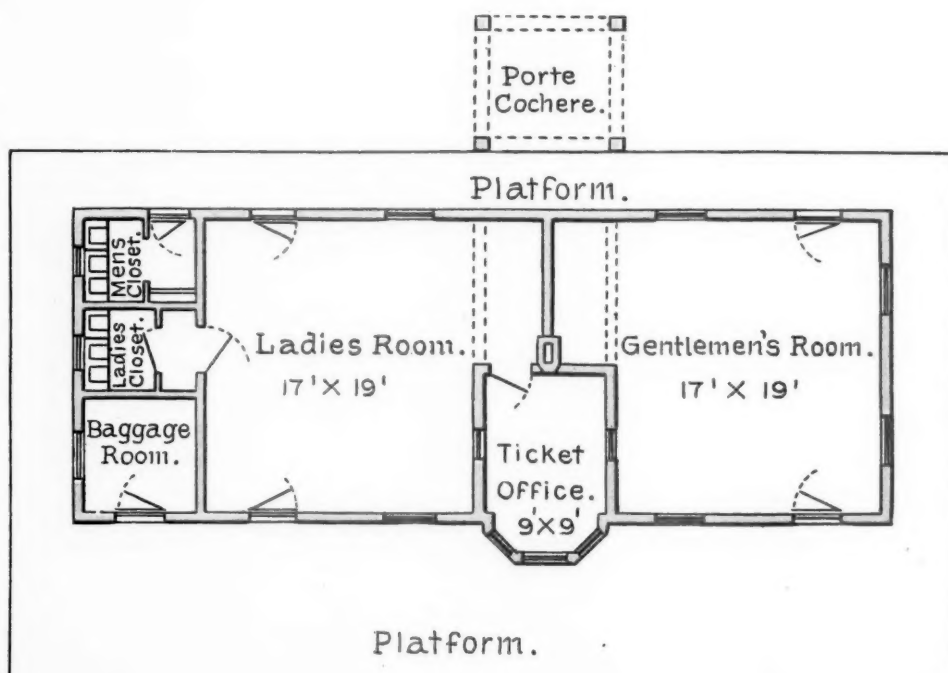
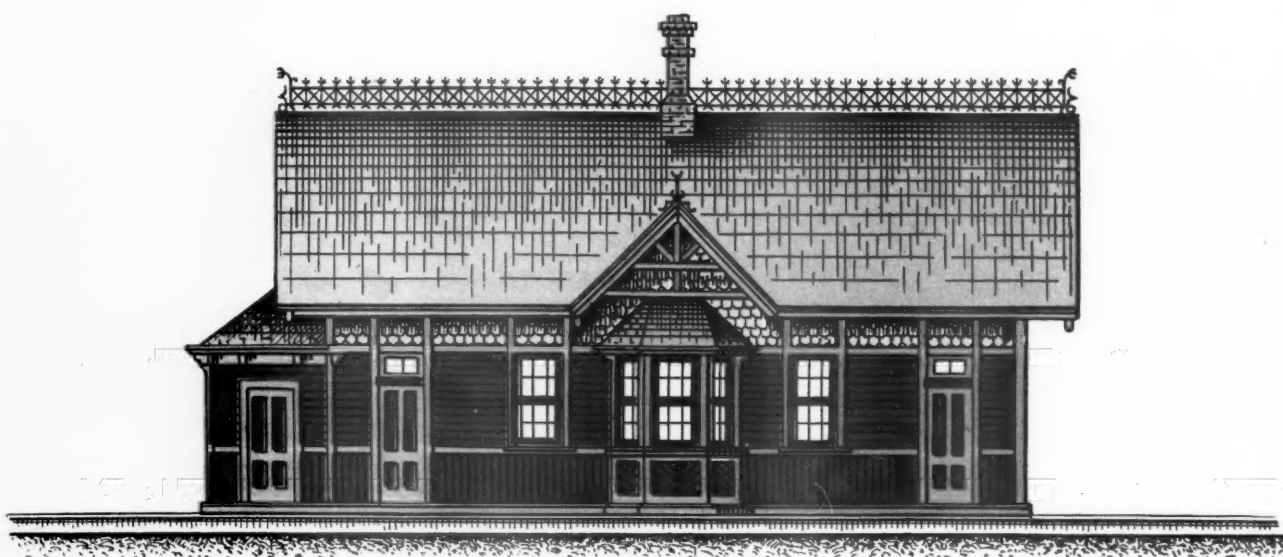
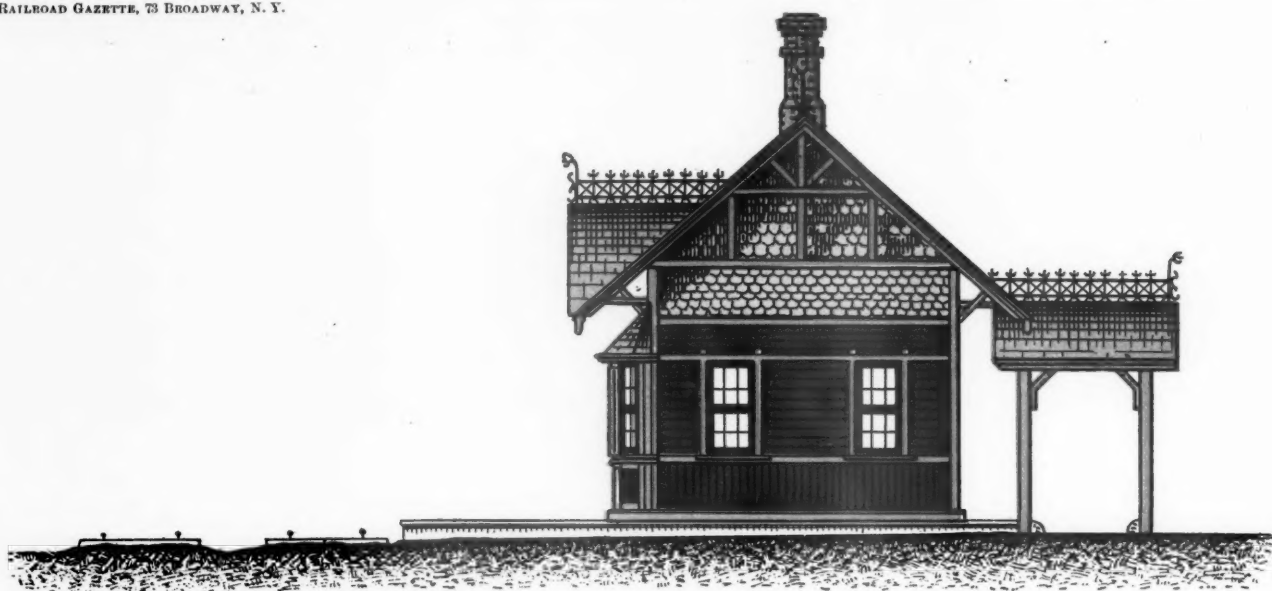
What has been said applies with equal force to rail fastenings. Once establish a standard for fish-plates and bolts and these will become a staple article of commerce, just as eight and ten-penny nails are now. The result would be that manufacturers all over the country would produce these articles without special orders for them, whereas now it is impossible. The market would thus be better supplied and great fluctuations be prevented, just as floods and droughts are by damming a stream and storing the water when there is too much of it for the time when it will be needed.

No department of railroad construction and operation, though, is in such a disgraceful state of confusion, and even contradictoriness, as the signal system now is. The beasts and birds in Noah's ark could hardly have been more unlike each other than are the signals on our different roads, and it is as true of switch targets as of rail sections, that each road-master has sought "to inflict his own individuality" on their shape, size and color. Even hand signals differ widely on the various roads, and what means one thing on one line means something quite different on another. It happens occasionally that trains run over the tracks of two different roads, and the trainmen in some such cases must observe signals at one end of their run which mean just the reverse at the other. The visibility of signals, too, has received very little attention, and the whole subject needs a most thorough investigation and discussion. Notwithstanding all that has been written about systems of interlocking signals, it is surprising how many among those who should be eligible to the proposed association are entirely ignorant of what the system is. If these men could hear an intelligent report on the subject read, and a lively discussion of it thereafter, its effect would be to wake them up as nothing else would. There is a class of people which has many representatives among railroad officers, who seldom or never acquire new ideas from books or papers or printed matter of any kind, but who will be aroused if they hear such matters talked about. All the books and newspaper articles that have ever been written about interlocking signals may be placed within their reach, and they will make no more impression than the passing wind; but put them among their colleagues, where such subjects are discussed, and they will quickly absorb some of the interest in the topics under consideration. The great accomplice of ignorance is mental inertia, and anything which acts as an intellectual stimulant, as intercourse with these who have had experience somewhat different from our own always does, helps greatly to dispel the fog with which a large proportion of mankind rather likes to be surrounded.

There is not room here to do more than name a number of topics which would properly be subjects for the consideration of an association of engineers and superintendents of permanent way. Among these are: The economic location of railroads, adjustment of track on grades and curves, maintenance of embankments on unstable foundations, the drainage of track both under ordinary conditions and in specially difficult localities, as in cuts and quick-sands, culverts, the preparation and use of ballast; to rail-sections and rail-fastenings should be added the specifications and tests of these, frogs, switches, railroad and wagon-road crossings, cattle-guards, specifications for bridges, floors and guards for same, foundations, trestles, the preservation of timber, track tools and machines, as pile-drivers, excavators and dredges; signals have been named already; the arrangement of stations, shops, water supply, would all make fertile and profitable matters for discussion.

A not unusual objection which is made by the chief executive officers of railroads to sending their subordinates to meetings of the kind under consideration is, that they go there and get their minds filled

* See Railroad Gazette of March 11.



PASSENGER STATION, NEW YORK & NEW ENGLAND RAILROAD, EAST DOUGLAS, MASS.

with all kinds of notions which they want to put into execution when they get home. This might be true of a man whose head is not quite "level," but in such a case the obvious and wise thing to do would be to substitute for such a man one less liable to permit bees to lodge in his bonnet. A man without the ability to estimate the value of what is presented for his consideration could hardly be considered a safe person to have charge of the maintenance of a railroad track.

This objection, though, may be viewed from the other side. That is, it may be said that a man in charge of a railroad track is liable to incur heavy expense on account of his ignorance of the methods which others employ to overcome difficulties. There is so much diversity in the duties which a railroad engineer and superintendent of permanent works of a railroad must perform, and so many novel contingencies arise, that he often needs all the assistance of the experience which others have had in dealing with similar problems. The duties of the officers named differ from those of the persons in charge of the other departments of railroads in the fact that the circumstances of the latter are usually duplicates of one another, whereas in the road department many difficulties must be met, each one unlike all the others.

A practical illustration of the use of special knowledge was given in one of the main lines of railroad quite recently. On the road referred to there was a considerable amount of masonry in culverts, tunnels and bridge piers, which had been injured from the disintegration of the stone and various other causes. Rather than pull it down the engineers in charge determined to incase it in *béton coignet*. In one case a culvert which would have cost \$36,000 to rebuild was restored for \$2,200. Another was put in good condition for \$600 which would have cost \$6,000 to rebuild. On one division of this road, masonry, which would have cost \$153,000 to rebuild, was thus put into good condition for \$27,000. It is safe to say that a knowledge of the use of this material on this line would be worth thousands of dollars to other roads. As it is, comparatively few engineers know anything of its use, or what they do know is of so indefinite and vague a character that they are not able to make any practical use of it.

The precise manner of organizing an association of railroad engineers and superintendents of permanent way will probably best be left to the consideration of some preliminary meeting to be held in the future. It may be said, though, that it will depend entirely upon how the proposition is received whether the movement will progress to the stage of a preliminary meeting. Those who are interested in the matter will call a meeting at an early date if their plan seems to meet with approval. Therefore all who favor the project will help to forward it by saying so in any way that they choose, and addressing such a communication to the editor of this paper.

THE WINTER GRAIN MOVEMENT.

Last year the winter grain movement for the Northwest ended April 3, including but one week more than we report upon below, lake navigation opening on that date; but this year we are likely to have full five months included in the winter movement from the time of the closing till the time of the opening of lake navigation.

During the 17 weeks from the close of navigation till March 26, the receipts and shipments of grain of all kinds at the seven reporting Northwestern markets (St. Louis, Peoria, Chicago, Milwaukee, Detroit, Toledo and Cleveland) and the receipts at the seven Atlantic ports have been, in bushels, for the past eight years:

Year.	Northwestern		Atlantic receipts.
	Receipts.	Shipments.	
1874.....	42,927,788	19,351,987	31,833,292
1875.....	26,722,750	13,614,161	26,465,063
1876.....	39,080,539	21,045,887	30,502,234
1877.....	34,035,620	17,388,165	31,859,801
1878.....	44,241,582	32,145,303	58,081,940
1879.....	52,863,100	28,136,803	60,059,116
1880.....	63,969,883	32,164,145	58,078,775
1881.....	55,539,080	28,760,122	52,852,255

Thus the receipts of the Northwestern markets were 13½ per cent. less this year than last, but larger than in any previous year; the shipments of these markets were 10.6 per cent. less than in 1880 and 1878, but larger than in other years; the Atlantic receipts were 10.4 less than last year, and the smallest for four years. In view of the severe winter, the movement must be regarded as a very satisfactory one, especially when we consider that there has been this year a very large increase in the shipments of flour over those of any previous year. We have not a complete record of the flour movement, but we have elsewhere pointed out the great increase at two of the Northwestern cities in March, and since December the increase in the flour receipts of the

Atlantic ports has been 985,478 barrels, equivalent to 4,484,651 bushels of wheat, while during the same time the decrease in the grain receipts at the same ports was 7,157,922, so that about five-eighths of the decrease in grain was made up by the increase in flour, and for the four months very likely the whole of it was so made up, both grain and flour receipts having been larger in December in 1880 than in 1879. This requires attention now as never before, because in previous years the fluctuations in the flour movement have been comparatively slight.

The decrease in the shipments of the Northwestern markets has been but two-fifths of the decrease in their receipts, but the latter so greatly exceed the former that there can hardly be said to be any significance in this fact. The lower rates to the seaboard during the three winter months tended to increase the shipments, but there was no pressure for storage room such as there was a year ago to force shipments.

Except in Atlantic receipts, the chief part of the decrease in the movement of the four months occurred in the last four weeks of that period, when traffic on the Northwestern railroads was probably more interrupted than in any other month, and when last year the movement was very much greater than had ever been known in March before. The extent of the decrease will be shown by the following comparison of this year's movement with last year's during the four weeks ending March 26:

	1881.	1880.	Decrease.	P.c.
Northwestern receipts.....	11,810,714	16,888,688	5,075,974	30.0
Shipments.....	7,809,499	12,745,012	4,935,513	39.7
Atlantic receipts.....	16,318,475	18,005,066	2,286,591	12.3

For the 17 weeks ending March 26 the receipts of grain of all kinds (not including flour) at the several Atlantic ports have been, in bushels, for the past five years:

	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.
New York.....	9,999,671	24,563,274	24,065,289	22,049,784	19,501,714
Boston.....	4,160,678	4,330,271	5,707,637	5,416,233	7,002,911
Portland.....	579,806	1,599,860	820,791	1,328,352	998,462
Montreal.....	31,905	83,849	82,537	230,864	192,112
Philadelphia.....	5,694,150	10,590,890	10,715,850	8,696,810	7,981,527
Baltimore.....	9,595,904	12,008,000	13,580,400	12,518,917	12,450,559
New Orleans.....	1,965,862	5,361,989	4,580,962	6,900,718	4,805,238
Total.....	32,061,929	58,292,717	59,592,806	58,082,708	52,852,255

The total Atlantic receipts for the four months were thus 9 per cent. less than last year, and still smaller than in the two previous years. Nearly half of this decrease was in the four weeks ending March 26, when the receipts were nearly an eighth less than last year. Every port except Boston received a smaller amount than last year. New Orleans, of whose growing trade so much has been said of late (and whose March receipts were really unusually large), has received less during the four months than in any winter since 1877, and 80 per cent. less than last year. Baltimore, however, has very nearly held its own, and Boston's receipts have increased nearly 30 per cent. The lower winter rail rate has worked against New Orleans receipts, but the snow blockades have worked in their favor. It is, however, not possible to say that seaboard receipts have been greatly reduced by the snow. At all times some routes have been open, and though if the railroads could have carried from the farmers' stations in Wisconsin, Minnesota and Iowa there certainly would have been larger receipts at Chicago and Milwaukee, it is not so certain that much of this grain would have gone forward to the seaboard, where the supply has been abundant throughout the winter. But the decrease in March receipts at the seaboard, amounting to nearly 2,300,000 bushels, was probably due to the blockades, the rates having been the same both years. This March decrease was chiefly at New York (1,600,000 bushels) and Philadelphia (1,060,000), against which there are increases of 164,000 bushels at Boston, and 408,000 at New Orleans. The percentages of the aggregate receipts of the seven ports received at each port during the four months were:

	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.
New York.....	31.0	42.2	40.4	39.5	36.9
Boston.....	13.0	7.5	9.6	9.3	13.2
Portland.....	1.8	2.1	1.4	2.3	1.8
Montreal.....	0.3	0.1	0.1	0.4	0.4
Philadelphia.....	17.8	18.2	18.0	15.0	15.0
Baltimore.....	29.9	20.7	22.8	21.6	23.6
New Orleans.....	6.2	9.2	7.7	11.9	9.1
Total.....	100.0	100.0	100.0	100.0	100.0

Thus gains in percentages over last year have been made by Boston and Baltimore alone, though Philadelphia just holds its last year's rank. Boston advances further than New York recedes, and Baltimore's forward is less than New Orleans' backward movement.

Comparing the percentages of New York with those of Philadelphia and Baltimore taken together, we have:

	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.
New York.....	31.0	42.2	40.4	39.5	36.9
Philadelphia and Baltimore.....	47.7	38.9	40.8	36.6	38.6
The three.....	78.7	81.1	81.2	76.1	75.5

New York thus has a smaller proportion than in any previous winter since 1877, but, with the exception of last winter, so have the other two cities, the

aggregate receipts of the three ports being smallest this year.

Taking New York and Boston together and comparing their aggregate percentages with those of Philadelphia and Baltimore, we have:

	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.
New York and Boston.....	44.0	49.7	50.0	48.8	50.1
Philadelphia and Baltimore.....	47.7	38.9	40.8	36.6	38.6
The four.....	91.7	88.6	90.8	85.4	88.7

Thus the two northern cities have together received a larger proportion of the total than in any of the other four years, though their gain in comparison with last year is less than that of the two southern cities. As the railroads carrying to New York and Boston are more subject to interruption by snow than the lines to the other places, this is another indication that the distribution of seaboard receipts has not been very greatly effected by the weather.

As we shall probably not have any more interruptions to traffic by snow, and there is a vast amount of grain in the country which could not be carried before, it might be supposed that there would be a great and general movement of grain henceforth. Probably this will be true of such grain as is accumulated at stations and at the great markets, and we shall see it in the shipments of the Northwestern markets and the receipts of the Atlantic ports. But the same causes that have prevented the railroads from carrying grain from the farmers' stations in the Northwest have made the farmers very late with their spring work. When they are able to plow, which for many will be as soon as the roads will enable them to haul grain to the railroads, they will be likely to give every hour to the work of putting in their crops, and until that is done not much grain will go from them. However, if the station warehouses are well filled (and snow sometimes makes hauling easier and not harder for the farmers) we may have heavy receipts at Chicago and Milwaukee, where they have been most interrupted, immediately. The reduction of the Chicago-New York rail rate from 35 to 30 cents per 100 lbs. April 1, will tend to stimulate shipments to the seaboard. The rate is the same as last year, after April 13, but last year at this time lake navigation was open, and now for a few weeks the railroads will have all the eastward shipments to themselves. With the same rates last year the rail movement in March and April was larger than ever before.

Foreign Railroad Notes.

Russia has built a military railroad east of the Caspian Sea, which at the end of January was in operation for 56 miles, followed by a horse railroad 18 miles long over a mountain ridge.

A Russian road has recently ordered that passenger trains should carry a stock of tea, sugar and bread sufficient to support the passengers in case the trains should be snow-bound, and the government has given instructions for the same thing to be done on other roads liable to snow blockades.

A Russian railroad last winter laid a track over the ice in the harbor of St. Petersburg to the island of Cronstadt, in order to remove to St. Petersburg great quantities of merchandise that was stored in ships frozen in there. It is spoken of as the only instance of a railroad on ice; but our readers will remember an illustrated description of one across the St. Lawrence at Montreal that we published last year (Feb. 27). The Russian road is more than three miles long.

It is reported that the Russian government will make an experiment in working railroads by the state, by taking over the Charkov & Nicolaiev Railroad, three-fourths of whose stock it has always owned. Russia has long been a railroad proprietor (usually part proprietor), but has not heretofore worked any railroad by government officials.

A committee of the French Chamber of Deputies has reported that the railroad employes need protection in their rights to the pension funds which the companies have established. If a man is discharged or leaves the service of a company he cannot claim his pension, which may be the accumulation of years, partly paid by him directly, and the whole of it representing his savings during that time. We called attention to this weak point in the French pension funds when we published a translation of Jacquemin's account of them several years ago.

A "Society of German Mechanical Engineers" has just been organized, with headquarters at Berlin, beginning with 140 members, from all parts of Germany. The first officers are: President, Herr Veitmeier, Civil Engineer, Member of the Imperial Patent Bureau and of the Royal Engineering Academy; First Vice-President, Director Stahl, of Stettin; Second Vice-President, Railroad Director Gust, of Berlin; Treasurer, F. C. Glaser, Commission Councillor. Regular meetings are to be held on the first Friday of every month at No. 8) Linden street, Berlin, W.

The length of public railroads opened for traffic in France in 1880 is 663 miles of lines of general importance, making the total in the country at the end of the year 14,740 miles, besides 148½ miles of private railroads (in mines, etc.). In 1880 57 miles of railroads of "local importance" were also opened, making a total of 1,356 miles of roads of that class.

Algeria (a French colony) had 715 miles of railroad in operation at the end of 1880. The expenditures for new railroad construction by France in 1880 were nearly \$55,000,000—nearly \$6,000,000 for corporation roads whose substructure is constructed by the state, more than \$7,000,000 for completing lines which the state has purchased, and nearly \$25,000,000 for new lines which the state has undertaken to construct wholly on its own account—the rest for lines which are to be built wholly by corporations. The government's expenditures are more than two thirds of the whole.

The Swiss Railroad Department has recently published statistics of the railroads of Switzerland for the year 1879. At the end of the year the total length of the roads in operation in the republic was 1,598 miles, including 1½ miles of wire rope road, 7½ of tramways, and 43 miles of "special roads" (probably mountain roads not worked by adhesion) worked by locomotives. These roads had 543 locomotives, 1,650 passenger cars and 8,545 freight cars. The average service was 14,696 miles run per locomotive, 30,410 per passenger car, and 11,766 per freight car. This report gives the first statement we have seen of the "interchange of cars" on European roads. While the Swiss freight cars ran 61,991,000 miles in local traffic, they ran 19,521,760 miles on foreign roads, and foreign freight cars ran 32,755,232 miles on Swiss roads. Switzerland imports nearly all its breadstuffs and exports much of its manufactures and most of its dairy products and wines.

More than four fifths of all the passengers traveled third-class, and only 1½ per cent. (13.2 out of every thousand) traveled first-class, in spite of the immense tourist travel in Switzerland. The passenger traffic was at the rate of 169,211 during the year, on 232 each way daily, over the whole mileage. On the average 30.7 per cent. of the seats in the cars were occupied. The average receipt per passenger per mile was 1.62 cents; per ton per mile, 3.12 cents, the latter very nearly four times the average receipt per ton per mile in New York the same year. The average earnings per mile of road were \$6,962—42.7 per cent. of which was from passenger trains. The working expenses were \$3,854 per mile, leaving average net earnings of \$3,108, or 70 cents per train mile. The total number of employés was 13,159, or 8.2 per mile, and the gross earnings were at the rate of \$838 per person employed. The aggregate net increase was at the rate of 3.2 per cent. on the aggregate capital of the roads.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Nantasket Beach.—Extended from Nantasket Beach to the Old Colony road in Hingham, Mass., 4 miles. Gauge, 3 ft.

Fernandina & Jacksonville.—Completed from Jacksonville, Fla., north to Hart's Road, 21½ miles.

Houston, East & West Texas.—Extended from Livingston, Tex., northeast to Moscow, 16 miles. Gauge, 3 feet.

Galveston, Harrisburg & San Antonio.—The *La Grange Branch* is extended from Ellinger, Tex., west to La Grange, 12 miles.

Kansas City, St. Joseph & Council Bluffs.—Track laid on the *Nodaway Valley Branch* from Bigelow, Mo., north to Burlington Junction, 32 miles; also on the *Tarkio Valley Branch* from Corning, Mo., north to the Iowa line, 28 miles.

Denver & Rio Grande.—The *San Juan Division* is extended from Alta, Col., west to Chama, 13 miles. The *Gunnison Division* is extended from Poncha, Col., southwest to Silver Creek, 7½ miles. The *Maysville Branch* is completed from Poncha to Maysville, 7 miles. Gauge, 3 ft.

This is a total of 141 miles of new railroad, making 682 miles reported thus far this year, against 887 miles at the corresponding period in 1880, 317 miles in 1879, 242 miles in 1878, and 190 miles in 1877.

COTTON RECEIPTS at the several seaports for the seven months of the crop-year ending with March were 5,090,626 bales this year, against 4,495,062 last, showing an increase of 595,564 bales, or 13½ per cent., and a greater increase over all previous years. The gains have been chiefly at Galveston, Savannah, Charleston and Norfolk, New Orleans having nearly the same receipts, and New York and Boston smaller ones.

The percentage of the total original receipts arriving at each of the leading ports in the two years has been:

	1881.	1880.
New Orleans.....	26.9	30.5
Savannah.....	15.8	15.6
Norfolk.....	12.4	11.3
Galveston.....	11.8	9.7
Charleston.....	11.3	9.5
Mobile.....	7.0	7.5
City Point.....	3.8	3.3
Boston.....	2.6	4.1
New York.....	2.5	3.8
Wilmington.....	2.2	1.7

Taking the ports by groups, the receipts are divided as follows:

	1881.	1880.	1881.	1880.
Gulf ports.....	2,340,272	2,146,795	45.6	47.7
South Atlantic ports.....	2,421,760	1,940,200	47.9	43.2
North Atlantic ports.....	328,594	408,067	6.5	9.1

In quantity the Gulf ports have gained 9 per cent. this year, and the South Atlantic ports 24.8 per cent., while the North Atlantic ports have lost 19.5 per cent. The South Atlantic ports thus stand at the head of the list as receivers, largely, doubtless, because of the increasing through shipments from the Mississippi valley to Norfolk and ports further south.

The receipts above are original receipts, not including the receipts at any port from another port. Great quantities are shipped from almost all the other ports to New York and Boston, and from Galveston and Mobile to New

Orleans; but these are credited only to the place where first received. This will explain why New York's exports are nearly three times as great as its receipts, and Norfolk's not half as great. The total exports for the seven months were 3,436,507 bales, against 2,910,530 last year—an increase of 525,977 bales, or 18 per cent. This year 34.6 per cent. of the exports were from New Orleans, 13.8 from Savannah, 12.0 from Charleston, 10.5 from Galveston, 9.9 from New York, and 8.3 from New York.

LONDON COAL RECEIPTS are partly by sea and partly by rail. One of the most productive coal districts lies close to the sea, on the east coast, which by rail is less than 300 miles from London. The statistics of the coal receipts for eleven years show that in that period the rail receipts have increased greatly, it is true, but still not enough to prevent some increase in the receipts by sea. The situation is somewhat like that of New York with respect to anthracite, except that the route for vessels to New York is very circuitous, and that to London is quite direct. But in both cases there must be some transportation by rail (or canal) before the vessels can get the coal, and the terminal expenses are probably as great as if the coal went through, while the large number of stations that the railroads have in London doubtless enables them to so distribute their coal in different parts of the city as to avoid much of the costly carting through the streets that is necessary for coal delivered by vessels, which may well be as costly as the whole cost of transportation from the mine to the city station in some cases. In the eleven years from 1870 to 1880, the London receipts by rail increased 65 per cent., and its receipts by sea 24 per cent. In 1870 55.7 per cent. of the total receipts were by rail; in 1880 62.5 per cent. But this percentage by rail is the smallest since 1876. Since 1877, while receipts by sea have increased 17.2 per cent., the rail receipts have increased, but 14 per cent. There has been no such change in the proportion delivered by rail as there has been in this country, for instance, in the proportion of grain delivered at the sea-board by rail since 1870, caused by the great reduction in rail rates. The London coal business is an immense traffic: in 1880 the total receipts were 9,515,000 tons, and in 1879 10,059,000 tons, which in weight is about four times as much as New York's grain and flour receipts last year. One railroad (the Midland), delivered 2,000,000 tons there last year, another 1,436,000, and a third 1,053,000. A considerable proportion of the London receipts are exported—in 1880 more than a quarter; but its consumption amounts to about 7,500,000 tons—say two tons per inhabitant.

AN ISTHMUS CANAL is advocated in this country chiefly as a shorter and cheaper route for the products of our Pacific coast to Europe. At least the only traffic considerable in bulk which this country can furnish to such a canal is the wheat product of Oregon and California, last year an enormous amount, nearly every bushel of which goes to market in sailing vessels around Cape Horn. It seems strange that the practicability of taking this by the Panama Railroad has not been more discussed. The cost of two transfers and a haul of not less than 50 miles should not, it would seem, be such a formidable obstacle. It is commonly estimated that the tolls by a canal across the isthmus would be two or three dollars a ton, and this amount ought to cover more than the cost of a rail transfer. Floating elevators could manage the transfers with much less costly harbor improvements than would be required for the large vessels passing through the canal, and would perhaps be practicable without any considerable harbor works, acting as the lighters now do. In this country transfers of this kind are made between lakes Erie and Ontario, to lighten the loads of vessels passing through the Welland Canal, and this is done in competition with the very low rates on the Erie Canal. While it would not pay the railroad to take this traffic at rates as low as the proposed canal tolls if it only got a cargo now and then, it might pay it well if it could thereby secure 10,000,000 to 20,000,000 bushels of grain a year—and this year the Pacific coast exports will exceed the latter amount. Two dollars a ton on this would increase the gross earnings of the Panama Railroad 70 per cent., and would be likely, it would seem, to justify not only the rate (much lower than the present average rate on that road), but the second track and large increase of equipment which it would require. If, however, the vessels would prefer the old route to the new one under these circumstances, because of the unfavorable navigation to and from the isthmus, then it is difficult to see how a canal would bring them that way.

THE PANAMA RAILROAD reports for 1880 \$2,277,674 as the gross income of its 47½ miles of railroad, which is at the rate of \$47,950 per mile of road—nearly as much as the average cost of railroads in this country. More than one-fourth of this income was from other sources than railroad transportation—\$171,358 from interest and exchange, \$166,667 from subsidy discount, and \$149,487 from lighterage. The earnings from transportation, however, were at the very satisfactory rate of \$35,053 per mile. The working expenses were but 39 per cent. of the earnings from transportation, and the net earnings were thus \$1,014,630 from 47½ miles of road, or \$21,360 per mile. During the year 16 per cent. dividends were paid on the \$7,000,000 of stock, but these very slightly exceeded the surplus net earnings of the year.

Compared with the previous year there was an increase of 3.8 per cent. in passenger earnings, but a decrease of 2.1 per cent. in freight earnings, and of 2.6 per cent. in the total earnings from transportation. Meanwhile there was an increase of no less than 28 per cent. in the working expenses, so that the net earnings from transportation fell from \$1,202,142 to \$1,014,630, or nearly one-sixth, though the

dividends were increased from 13 to 16 per cent. But in 1879 the receipts from lighterage, etc., were \$246,500 less, and in that year the surplus was increased \$611,000, while in 1880 it was decreased \$18,000. The report does not give the amount of traffic in the year, but it is reasonable to suppose that it has been somewhat decreased by the war between Peru and Chili, a very large portion of the traffic of the road being the commerce of the west coast of South America, and comparatively a small part that between the Atlantic and Pacific coasts of the United States. A very small part of this road's earnings are from passengers (last year less than 9 per cent.).

BRITISH RAILROAD RATES are to be investigated by a select committee of the House of Commons, to the composition of which we especially wish to call attention. There are 27 members, and among them the following, at once recognizable even on this side of the Atlantic as belonging to railroad chairmen (equivalent to our presidents) of the first rank, namely, Sir Henry Tyler (Grand Trunk), Sir Daniel Gooch (Great Western), Sir Edward Watkin (Metropolitan and two other companies). Four of the other members are railroad directors, of whom there is always a very large number in the British Parliament. The President of the Board of Trade stated that one member of the committee (the chairman) represented the Board of Trade, two the legal profession, four agricultural interests, five the coal and iron industries, six manufactures and commerce, seven the railroad interest, and one he was unable to classify; at the same time he nominated four new members (making the 27), one representing the coal trade, two agriculture and one commerce. How much more fruitful an investigation may be when some of the investigators are familiar with the subject, and know how to bring out their side of it, it is not necessary to point out. An investigation of this kind should bring out all the facts. As for this particular investigation, its result will be interesting the world over, for the reason that it is not possible to ascertain from any report or documents what are the freight rates actually charged in Great Britain, while as for average rates, they will be beyond the reach of the committee even until the English roads preserve statistics of passenger and tonnage mileage, which the law does not now require them to do, and which we have never seen published for any British railroad. The first witness examined by the new committee was a lawyer who had been retained by the Farmer's Alliance.

THE SUDDEN GROWTH OF WESTERN FLOUR MANUFACTURE is strikingly shown by the March receipts at Chicago and Milwaukee, which we publish elsewhere. Owing to the snow blockade the total receipts of grain at these markets were exceptionally small last March, but their flour receipts were much larger than in any previous March. If we reduce flour to wheat on the basis of 4½ bushels per barrel, we find that the receipts of 1880 compare as follows with those of 1881:

	1880.	1881.	1880.	1881.
Wheat.....	1,070,514	629,671	572,608	451,820
Flour.....	1,267,956	2,326,518	814,297	1,016,729
Total.....	2,338,470	2,956,189	1,386,905	1,468,549
P. c. of flour.....	54.2	78.7	58.7	60.3

Taking the two markets together, out of total receipts of 3,725,375 bushels of grain and its equivalent in flour in March, 1880, 2,082,253 bushels, or 56½ per cent., were in the form of flour; while this year out of a total of 4,424,738 bushels, no less than 3,343,247, or more than 75 per cent., were flour. Further, it should be said that until this year, though wheat receipts have often increased largely, flour receipts have not. The change must be borne in mind in all studies of the grain movement, and especially of the wheat movement. Thus, though the reports show a decrease of 40 per cent. at Chicago in its March receipts, in the equivalent breadstuff (flour and wheat together) there was an increase of more than one-fourth this year. Though the freight earnings from flour are 26 per cent. less than those from the equivalent wheat, still the freight on the flour and wheat together was larger to both places in March this year than last.

EAST-BOUND RATES were reduced April 1 on the classes including grain and provisions, making the grain rate 30 cents per 100 lbs. from Chicago to New York, with the usual differences from other points and to other seaports. The 35-cent rate had been in force since Nov. 22. The winter tariff was made unusually late and lasted to an unusually late period. In 1879 the rate was made 35 cents Oct. 13 and 40 Nov. 10, and was reduced to 35 March 1, 1880, and to 30 only on April 14—eleven days after navigation opened. Prices of grain have been lower this year, and a lower basis seemed necessary. The reduction from 35 to 30 is made a month before the expected opening of navigation, as that from 40 to 35 was made last year. Whether it will be necessary to make another reduction after navigation opens, as was done last year, remains to be seen. But it now seems more likely than it did some weeks ago that it will be possible to maintain the summer rate at 30 (as was done throughout the season last year), at least until after harvest. The obstructions to traffic have prevented the large March movement that was naturally expected, and will cause an accumulation of grain when navigation opens that may keep lake rates at a high level, and the vessels now are asking more than last year's opening rates. Then the lateness of the opening will reduce the aggregate carrying capacity of the vessels for the season; they will have one-eighth less time to carry in than they had last year.

It is impossible to guess what rates may be after harvest until we can make some estimate of what the crops will be and what demand there will be for them abroad.

THE PETROLEUM EXPORTS from all United States ports in January were 18,458,954 gallons this year, against 38,252,454 in 1880—a decrease of 52 per cent. Of the total this year, no less than 89 per cent. was from New York, 7.3 from Philadelphia, and nearly 3 per cent. from Boston. Baltimore's exports were a mere trifle (52,590 gallons); so it, which a few years ago exported millions of gallons and contested the second place with Philadelphia, may be said to have abandoned the business.

Passenger Station on the New York & New England Railroad.

The full page colored engraving, with this number, represents a very neat passenger station which has been built lately at East Douglas, Mass. The illustrations require no further description. They show the color as well as the form of the building. This, as our readers well know, is the first illustration of the kind that has appeared in the pages of the *Railroad Gazette*. It is in a measure an experiment, the success of which will probably lead us to repeat it in future.

We regret that we are unable to give the name of the designer of this building. It was built under the supervision of Mr. J. C. Rawn, Engineer of Road, Bridges and Buildings of the above line, to whom we are indebted for the drawings from which the illustrations were made.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:
Delaware & Hudson Canal, annual meeting, at the office in New York, May 10, at noon. Transfer-books close April 16.

Chicago, Burlington & Quincy, adjourned special meeting, at the office in Chicago, May 4.

Railroad Conventions.

The *General Time Convention* will meet at the Grand Pacific Hotel, Chicago, April 13.

The *Southern Time Convention* will meet at the rooms of the *Official Railway Guide*, No. 46 Bond street, New York, April 20.

The *Railway Purchasing Agents' Association* will hold its annual convention in St. Louis, May 17.

Dividends.

Dividends have been declared as follows:

Pittsburgh, Ft. Wayne & Chicago, 1½ per cent., quarterly, on special stock, payable April 1; 1¼ per cent., quarterly, on regular stock, payable April 5.

Nashua & Rochester (leased to Worcester & Nashua), 1½ per cent., semi-annual, payable April 1.

National Car Co., 2½ per cent., quarterly, payable April 1.

Sioux City & Pacific, 3½ per cent., semi-annual, on the preferred stock, payable April 5.

Vermont & Massachusetts (leased to Fitchburg), 3 per cent., semi-annual, payable April 7.

Foreclosure Sales.

The *Spartanburg & Asheville* road was sold April 4 under a decree of foreclosure granted by the United States Circuit Court, and bought for \$111,000 by Joseph Walker, who represents the committee of bondholders. A bid of \$100,000 was made for the holders of liens subordinate to the mortgage, and one of \$110,000 by Dr. R. M. Smith. It is understood that the purchasers are ready to turn over the property to the *Spartanburg, Union & Columbia* Company. The road is completed from Spartanburg, S. C., to Hendersonville, N. C., 48 miles, and partly graded from Hendersonville to Asheville, 20 miles. The bonded debt was \$400,000 by the latest report.

The *Texas Western* road was sold in Houston, Tex., April 5, under a decree obtained by the Farmers' Loan & Trust Company of New York. It was sold for \$100,000 to attorneys for Messrs. Stone, Spofford and Chew. The road runs from Houston to Pattison, 41 miles, and is of 3 ft. gauge. It is understood that the new owners will change it to standard gauge and extend it westward.

The Master Mechanics' Association.

The following notice has been issued by Mr. J. H. Setchel, Secretary of this Association: "It has been thought by the General Supervisory Committee that it will be exceedingly difficult for members from the South and West to leave their very arduous duties, occasioned by the past severe winter, at so early a period in the month as will be necessary for them to reach Providence, R. I., in time to attend the annual meeting on May 10. The meeting has therefore been postponed until Tuesday, June 14, at which time all master mechanics of the United States and Canada are cordially invited to attend."

Western Association General Passenger & Ticket Agents.

The following circular has just been issued by Mr. George H. Daniels, Secretary of the Association:

In accordance with the constitution, and at the request of fifteen members, I hereby call a special meeting of this association, to be held at the Grand Pacific Hotel, Chicago, Thursday, April 14, 1881, at 11 o'clock a. m., for the purpose of considering the following questions:

1. The following circular issued by the Eastern trunk lines to their agents:

"At a meeting of the executive officers of the Grand Trunk, Vermont Central, Boston & Albany, New York Central & Hudson River, New York, Lake Erie & Western, Pennsylvania, and Baltimore & Ohio Railroad Companies, held in New York March 11, 1881, it was

"Agreed that, from April 1, 1881, the issue of emigrant tickets be confined exclusively to the seaports of Montreal, Quebec, Halifax, Portland, Boston, New York, Philadelphia and Baltimore—emigrant tickets after that date being intended for European emigrants only, and to be accepted for passage only on emigrant trains on the trunk lines, and limited to a continuous journey which shall not be longer, except by one day, than the time of first or second-class tickets. All emigrant tickets or orders will from that date be withdrawn entirely from the interior territory east of the western terminus of the trunk lines; and at the seaports above-named they will be issued only from specified offices.

"Also agreed, that second-class tickets and rates for the low-grade seaboard and interior travel be adopted from April 1 prox.; such tickets to be restricted to continuous passage, and to be used within a reasonable number of days

from date of purchase, and to be valid for passage only in the lowest grade cars of express trains.

"In accordance with above agreement, you will, at the close of this month, please return to this office, by express, all emigrant or third-class tickets or orders of this company that you may have on hand, forwarding a statement of same by train or mail.

"Limited second-class tickets (or orders for same) will be supplied you in time to place them on sale—1st prox.—and rates and time limits will be quoted in tariffs taking effect same date."

2. The following resolutions adopted by the National Association of General Passenger and Ticket Agents, at New York, March 10, 1881:

"Resolved, That for all lines not furnishing different or separate accommodations for second and third-class passengers there shall hereafter be but two classes of coupon tickets used from interior points—viz., first and second-class."

In view of the fact that these questions are of great importance to almost every line in this Association, and that their intelligent settlement cannot be effected without the co-operation of all the more prominent lines, it is hoped that every member will either be present in person or send a representative.

ELECTIONS AND APPOINTMENTS.

American Steamship Co.—At the annual meeting in Philadelphia, April 4, the following were chosen: President, Henry D. Welsh; directors, George N. Allen, Henry C. Butcher, D. B. Cummins, J. N. DuBarry, Strickland Kneass, Joseph W. Lewis, George B. Roberts, N. Parker Shortridge, John Price Wetherill, Wm. D. Winsor.

Baltimore & Ohio.—Mr. S. Spencer, Assistant to the President, will have temporary charge of the Trans-Ohio lines until a successor to Mr. C. H. Hudson is appointed. Mr. Spencer is a young man of great promise and a thorough student of railroad administration.

Boulder & Denver Air Line.—The directors of this new company are: Junius Berkley, Charles G. Buckingham, Lewis Cheney, Charles Dabney, John A. Ellett, J. Steinberg, Hiram E. Washburn. Office at Boulder, Colorado.

Central Iowa.—This road is to be divided into two divisions with Marshalltown as the dividing point. Mr. P. G. Francisco, late of the Rock Island road, will be Superintendent of the Southern Division, and Mr. M. Burnett of the Northern Division.

Chicago & Alton.—At the annual meeting in Chicago, April 4, the following directors, one-third of the board, were chosen for three years: John F. Slater, Norwich, Conn.; George Straut, Peoria, Ill.; James C. McMullin, Chicago. The only change is the election of Mr. McMullin, General Manager of the road, in place of John A. Stewart, of New York.

Chicago, Burlington & Quincy.—The names of the directors chosen last week are: C. E. Perkins, Burlington, Ia.; Edward Bangs, Wirt Dexter, Chicago; Sidney Bartlett, T. Jefferson Coolidge, Wm. Edicott, Jr., J. M. Forbes, J. L. Gardner, Jr., Charles J. Paine, Boston; John N. A. Griswold, Newport, R. I.; Peter Geddes, New York. As noted last week, the only new director is Mr. Dexter, who succeeds J. M. Walker, deceased.

Chicago, Milwaukee & St. Paul.—The following circular is dated Milwaukee, March 31:

"Mr. J. H. Jenkins has been appointed Superintendent of the Dubuque Division, in place of Mr. F. O. Wyatt, resigned.

"From this date that portion of the Dubuque Division south of Sabula will be attached to the Southwestern Division, and employees thereon will report to D. A. Olin, Superintendent, Racine.

"Employees of the Wisconsin Valley Division will hereafter report to H. C. Atkins, Superintendent, Milwaukee."

The following circular has been issued by the new superintendent of the Dubuque Division: "Mr. Frank Adams has been appointed Road-Master of this division. The construction and repairs of the tracks, bridges and buildings are placed under his immediate control. All matters pertaining thereto must be referred to him, and all employees, in these departments, will report to and receive instructions from the Road-Master."

Chicago, St. Paul, Minneapolis & Omaha.—Mr. Henry A. Gray is appointed Assistant Auditor of this line, with headquarters at St. Paul. This appointment to date from April 1, 1881.

Cincinnati, Georgetown & Portsmouth.—At the annual meeting, March 26, the following directors were chosen: H. Brachmann, W. E. Brachmann, Joseph Clare, B. Kline, Andrew Pfirman. The board elected H. Brachmann President; Andrew Pfirman, Vice-President; H. Simmons, Secretary; W. E. Brachmann, Treasurer.

Denver & Rio Grande.—Mr. George W. Ristine has been lately appointed Assistant to the President. He has been for some time Manager of the Empire Line.

East Tennessee, Virginia & Georgia.—Capt. Norman Webb has been appointed Master of Transportation of the Selma Division, in place of J. H. Garner, resigned.

Humeston & Shenandoah.—The officers of this new company are: President, James F. How; Secretary and General Manager, F. O. Wyatt; Treasurer, W. W. Baldwin.

Indiana Coal & Railway.—The directors of this new company are: George W. Stanton, I. N. Hudson, Charles Thies, R. F. Clark, Arthur Holmes, C. P. Chapman, A. D. Mellick. Office in Terre Haute, Ind.

International & Great Northern.—At the annual meeting in Palestine, April 4, the following directors were chosen: R. S. Hayes, H. M. Hoxie, D. S. H. Smith, Palestine, Tex.; James A. Baker, F. A. Rice, Houston, Tex.; Jay Gould, S. W. Pearsall, Wm. Walter Phelps, Samuel Sloan, New York. The board re-elected R. S. Hayes, President; S. W. Pearsall, First Vice-President; H. M. Hoxie, Second Vice-President and General Superintendent; D. S. H. Smith, Secretary and Treasurer.

Junction Railroad.—At the annual meeting in Philadelphia, April 4, the following were chosen: President, Isaac Hinkley; directors, S. M. Tilton, Franklin B. Gowen, Henry M. Phillips, George B. Roberts; Secretary, John C. Sims, Jr.; Treasurer, W. H. Frailey.

Kankakee & Seneca.—The officers of this new company are: President, T. P. Bonfield; Secretary, T. E. Bonfield. Office at Kankakee, Ill.

Littleton & Franconia.—This company has been organized with the following officers: President, Cyrus Eastman; directors, Samuel N. Bell, J. A. Dodge, Charles H. Greenleaf, Eleazar B. Parker, George B. Redington, Henry L. Tilton; Clerk, E. C. Stevens; Treasurer, Henry L. Tilton.

Louisville, Cincinnati & Lexington.—The following circu-

lar from General Superintendent Wm. Mahl is dated Louisville, Ky., April 1:

"The maintenance of the permanent way of the lines owned and leased by this company will hereafter be in charge of the following officers:

"A General Road-Master, who shall have charge of the maintenance of the completed roadway, the construction of sidings, and other new work on the line under his charge.

"A Supervisor of Bridges and Buildings, who shall be in charge of the maintenance of the bridges and depots, water-stations and other buildings, and the erection of any new structures on the line under his charge.

"The office of Engineer of Maintenance of Way is abolished, and the following appointments are made in accordance with the above, to take effect this day: Geo. C. McMichael, General Road-Master; Jas. M. Hall, Supervisor Bridges and Buildings."

Massachusetts Railway Commission.—Mr. Frederick E. Jones has been appointed Supervisor of Railroad Accounts to this Commission, in place of J. H. Goodspeed, resigned. Mr. Jones has been in the Auditor's office of the New York & New-England.

Mexican Central.—At the annual meeting in Boston, April 4, the following directors were chosen: Thomas Dana, William Rotch, Warren Sawyer, Royal M. Pulsifer, Isaac T. Burr, Thomas Nickerson, Charles J. Paine, Fred L. Ames, Boston; William O. Naylor, Theodore Nickerson, Levi C. Wade, George B. Wilbur, Benjamin F. Cheney, Rudolph Fink, Sebastian Camacho, Ramon C. Guzman, of Mexico; Robert R. Symon, New York. Executive Committee, Thomas Nickerson, Thomas Dana, Fred L. Ames, Isaac T. Burr, Warren Sawyer, Royal M. Pulsifer, William O. Taylor, Theodore Nickerson, Levi C. Wade, George B. Wilbur.

Midland, of New Jersey.—At the annual meeting in Jersey City, March 31, the following directors were chosen: Charles Siedler, Jersey City, N. J.; W. S. Dunn, Elizabeth, N. J.; F. A. Potts, Flemington, N. J.; G. A. Hobart, Jacob Rogers, Paterson, N. J.; Simon Borg, R. K. Dow, Walter S. Gurnee, A. L. Lee, Henry Marks, C. Minzesheimer, T. E. Peck, Henry Sanford, New York. Messrs. Potts, Hobart, Rogers, Borg and Marks are the old directors remaining in the new board, the rest being new men. The board elected Walter S. Gurnee President; G. A. Hobart, Vice-President; Wm. O. McDowell, Secretary; A. L. Lee, Treasurer.

New England Railway Publishing Co.—Mr. G. A. Schaffer having resigned his position as Manager and Treasurer of this company, Mr. N. E. Weeks is appointed his successor. All communications pertaining to the business of the company should be addressed to Mr. Weeks, and checks drawn to his order.

New London Northern.—The board has elected Robert Coit President, in place of Dr. Charles Osgood, deceased.

New York, Ontario & Western.—Mr. S. C. Anderson has been appointed General Freight and Passenger Agent, with office in Middletown, N. Y. He was formerly General Freight and Passenger Agent of the New Jersey Midland.

Northern Pacific.—Gen. Herman Haupt has been appointed General Manager, in place of H. E. Sargeant, resigned. Gen. Haupt is one of the oldest and best known engineers in this country. He graduated from West Point some 45 years ago and, after serving as Assistant State Engineer of Pennsylvania and as Professor in a Pennsylvania college, he was Chief Engineer and afterward Superintendent of the Philadelphia & Columbia road, now part of the Pennsylvania. He was afterward connected with the Hoosac Tunnel, and during the war was in charge of government railroads.

Panama.—At the annual meeting in New York, April 4, the old board was re-elected, as follows: W. B. Dinsmore, C. G. Francklyn, George Garr, D. A. Hoyt, C. D. Leverick, J. G. McCullough, Thomas Maddock, J. R. Marshall, Christopher Meyer, D. O. Mills, Joseph Ogden, Trenor W. Park, S. C. Thompson.

Pennsylvania.—Mr. George M. Ball has been appointed Manager of the Empire Line, owned by this company, in place of George W. Ristine, resigned. Mr. George W. Cross is appointed General Freight Agent and Western Superintendent of the line.

Pennsylvania Company.—The following circular has been issued, bearing date April 1:

"The following appointments have been made for this company, to take effect from date:

"Henry Monett, Chief Assistant General Passenger Agent, Pittsburgh.

"C. W. Adams, Assistant General Passenger Agent, Chicago.

"Assistant General Passenger Agents will report direct to the General Passenger and Ticket Agent at Pittsburgh.

"Henry Monett, Chief Assistant General Passenger Agent, Pittsburgh, will have immediate control of all clerks in the general passenger and ticket office, and they will report to him for instructions. He has authority to conduct local and general correspondence; issue instructions to all subordinates in regard to passenger rates, tickets, and the various matters pertaining to passenger business, using the signature of the General Passenger and Ticket Agent, or his own, as circumstances may seem to require. No one but Mr. Monett will be allowed to sign the name of the General Passenger and Ticket Agent to any document whatever, except upon special authority. When the General Passenger and Ticket Agent is absent from Pittsburgh, Mr. Monett will represent and act for him.

"C. W. Adams, Assistant General Passenger Agent, Chicago, will have immediate charge of the various matters pertaining to passenger business West and Northwest of Chicago and Fort Wayne, and all territory tributary to this Company's lines via Chicago or via Fort Wayne.

"All local or traveling passenger agents, on duty at Chicago or in the district above described, will report to Mr. Adams.

"Any local or traveling passenger agent so located as not to be included in the above district, will, until further notice, report direct to the General Passenger and Ticket Agent.

"All passenger agents now in the employ of this company will please continue their duties as usual, until further notice, except in the matter of reporting for instructions as above mentioned."

Philadelphia, Wilmington & Baltimore.—Mr. Alphonse Feldpauche has been appointed Chief Engineer, in place of S. T. Fuller, resigned. He has been in charge of the Junction Railroad in Philadelphia for some time.

Pittsburgh, Cincinnati & St. Louis.—Mr. W. L. O'Brien, recently relieved by Mr. E. A. Ford as General Passenger Agent, has been appointed General Agent, with office in Cincinnati.

The following circular is dated April 1: "The following appointments have been made for this company, to take effect from date: Henry Monett, Chief Assistant General Passenger Agent, Pittsburgh; C. C. Cobb, Assistant General

Passenger Agent, Cincinnati; C. W. Adams, Assistant General Passenger Agent, Chicago.

"Assistant General Passenger Agents will report direct to the General Passenger and Ticket Agent at Pittsburgh.

"Henry Monett, Chief Assistant General Passenger Agent, Pittsburgh, will have immediate control of all clerks in the general passenger and ticket office, and they will report to him for instructions. He has authority to conduct local and general correspondence, issue instructions to all subordinates in regard to passenger rates, tickets and the various matters pertaining to passenger business, using the signature of the General Passenger and Ticket Agent, or his own, as circumstances may seem to require. No one but Mr. Monett will be allowed to sign the name of the General Passenger and Ticket Agent to any document whatever, except upon special authority. When the General Passenger and Ticket Agent is absent from Pittsburgh, Mr. Monett will represent and act for him.

"C. W. Adams, Assistant General Passenger Agent, Chicago, will have immediate charge of the various matters pertaining to passenger business west and northwest of Chicago, including Chicago and Logansport, and all territory tributary to this company's line via Chicago or via Logansport, except the business controlled by the agent of the Chicago, Cincinnati, Indianapolis and Louisville pools.

"All local or traveling passenger agents on duty at Chicago, or in the district above described, will report to Mr. Adams.

"C. C. Cobb, Assistant General Passenger Agent, Cincinnati, will have immediate charge of the various matters pertaining to passenger business south of the Ohio and east of the Mississippi Rivers (including Texas), and in the territory east of Indianapolis, south of Logansport and west of Newcomerstown, including the cities of Cincinnati, Columbus, Dayton and Indianapolis.

"All local or traveling passenger agents on duty at points named above or within the district described will report to Mr. Cobb.

"Any local or traveling passenger agent so located as not to be included in either of the above districts, will, until further notice, report direct to the General Passenger and Ticket Agent.

"All passenger agents now in the employ of this company will please continue their duties as usual until further notice, except in the matter of reporting for instructions as above directed."

Sonora.—At the annual meeting in Boston, April 6, the following directors were chosen: Benjamin P. Cheney, C. C. Burr, Thomas Nickerson, Charles W. Pierce, Levi C. Wade, George B. Wilbur, Boston; Arthur Sewall, Bath, Me.; N. K. Fairbank, Chicago; A. B. Lowrie, William J. Roth, Robert R. Symon, New York; Sebastian Camacho, David Ferguson, Mexico. The board elected Thomas Nickerson President; Levi C. Wade, First Vice-President and General Solicitor; Robert R. Symon, Second Vice-President; S. W. Reynolds, Clerk and Treasurer; J. H. Goodspeed, Auditor; D. B. Robinson, General Manager.

Southwestern Railway Association.—The following circular from Commissioner J. W. Midgley is dated April 1:

"From and after this date, and until otherwise advised, the routine affairs of the association in the Southwest will be entrusted to Mr. C. C. Church. He will, under the title of Chief Clerk, have charge of the office; will continue the daily reports; will give direction as to the diversion of tonnage, and will have authority to call for information or examine the books and papers of all roads in the association.

"Matters pertaining to interchange of traffic with connecting roads, or negotiations for the same, will be referred to this office."

Terre Haute & Merom.—The directors of this new company are: Henry T. Harper, Thomas J. Cushman, Henry D. Shideler, David W. Larr, George W. Hanchett, William M. Johnson, William E. Ward. Office at Merom, Sullivan County, Ind.

PERSONAL.

—Mr. J. C. McMullin, General Manager of the Chicago & Alton, who is now in Florida for the benefit of his health, is rapidly recovering, and expects to return to Chicago about the end of this month.

—Mr. J. W. Bishop has resigned his position as General Manager of the Chicago, St. Paul, Minneapolis & Omaha, and will take a share in the extensive contracting firm of Langdon & Co., which will hereafter be Langdon & Bishop.

—Mr. J. H. Garner, Master of Transportation of the Selma Division of the East Tennessee, Virginia & Georgia, has resigned to accept the position of Superintendent of Transportation of the Mexican Central, with office in the city of Mexico.

—Mr. Isaac N. Ross, a director and formerly Superintendent of the Boston, Barre & Gardner road, died last week at his residence in Holden, Mass. By direction of Mr. Ross his body was taken to Washington, Pa., and burned in the crematory there.

—Mr. Hiram Hosford, who has been Manager of the Boston & Lowell road for several years past, since the retirement of Mr. George Stark, died in Lowell, Mass., April 3, after a lingering illness, aged 57 years. He was formerly for several years Mayor of Lowell.

—Mr. Wm. McCammon, who died in Albany, N. Y., April 3, aged 70 years, was an old engineer. He was employed on many public works, at one time was Resident Engineer on the Erie Canal, and was one of the founders of the Rensselaer Iron Works in Troy.

—Mr. Thomas A. Scott has added to his gifts to educational and charitable institutions recently noted, by giving \$50,000 to a Southern college, understood to be the Washington and Lee University at Lexington, Va. The money will probably be used to endow a professorship.

—Mr. C. H. Hudson, for some years past Superintendent of the Trans-Ohio lines of the Baltimore & Ohio, and a thoroughly educated and trained railroad man, resigned that position on April 1. His resignation was tendered some time ago. Mr. Hudson will be engaged at Peoria, Ill., for a short time.

—Mr. J. H. Goodspeed, who for several years past has acceptably filled the position of Supervisor of Railroad Accounts in the office of the Massachusetts Board of Railroad Commissioners, has resigned and accepted a similar position with the group of railroads comprising the Mexican Central, Sonora, California Southern, and Atlantic & Pacific railroads.

—Mr. F. R. Myers, who left the service of the Pennsylvania Company on the 1st inst., had been General Passenger and Ticket Agent of the Fort Wayne road since 1864, and in railroad service since 1852, and was known throughout the country as an earnest, faithful and intelligent officer. He intends to sail for Europe in a few weeks, to spend some time abroad with his family.

—Mr. H. C. Francis, for some time past Assistant Superintendent of the Rogers Locomotive Works, and in full charge of the works since Mr. W. S. Hudson's illness last fall, has

resigned that position, and will take charge of the manufacturing department of the United States Electric Lighting Company. His headquarters will be at the Equitable Building, No. 120 Broadway, New York.

—Mr. S. T. Fuller, who has just resigned his position as Chief Engineer of the Philadelphia, Wilmington & Baltimore to take charge of a road in Texas, was entertained at supper in Wilmington, Del., April 1, by the Supervisors of the road. In the course of the evening Mr. Fuller was presented with a valuable silver service and a set of complimentary resolutions. Mr. Fuller started for Texas on April 2.

—Mr. H. A. Gray having resigned his position as General Book-keeper in the Treasury Department of the Chicago & Northwestern to become Assistant Auditor of the Chicago, St. Paul, Minneapolis & Omaha, his associates on the Northwestern presented him on March 31 with a handsome silver set. The presentation was a very pleasant affair. Mr. Gray has been one of Mr. Kirkman's most trusted subordinates.

—At the annual meeting of the Chicago, Burlington & Quincy, last week, the following action in regard to the death of J. M. Walker was taken:

"The stockholders of the Chicago, Burlington & Quincy Railroad Company, desiring to embody in permanent form their high appreciation of the services and character of James M. Walker, do hereby direct that the following resolutions be entered upon their records:

"First—That they recognize in Mr. Walker a man whose high character was a perpetual assurance that the interests confided to his charge would be administered with fidelity and honor.

"Second—That among those who have aided in their several ways, to the growth of this company from a struggling and feeble corporation to its present magnitude, to Mr. Walker, perhaps as much as to any other, from his length of service, his high appreciation of the sacredness of delegated trusts, and his happy faculty of the management of affairs, belongs the credit of such extended growth and usefulness.

"Third—That while Mr. Walker has passed from us in the usefulness of his powers, and when we might have hoped for him years of honored ease as a crown of his laborious life, yet recognizing that life is not measured alone by length of days we feel that in successes achieved and in results accomplished his work has been one of conspicuous fidelity and value, and that he has entered into his rest leaving a record worthy of the most studious imitation."

TRAFFIC AND EARNINGS.

Railroad Earnings.

Earnings for various periods have been reported as follows:

Three months ending March 31:

	1881.	1880.	Inc. or Dec.	P. c.
Chl., Mil. & St. Paul	\$2,591,000	\$2,403,721	I. \$187,279	7.8
Denver & R. G.	1,023,650	421,345	I. 602,305	143.4
Houston & Tex. Cent.	1,010,552	829,578	I. 180,974	21.8
Ind. & Gt. No.	618,055	417,349	I. 200,706	48.1
Louisville & Nash.	2,562,149	1,851,915	I. 708,234	38.2
Mobile & Ohio	685,944	322,511	I. 363,433	10.2
Northern Pacific	337,661	278,007	I. 59,654	21.5
St. L., Iron Mt. & So.	1,823,749	1,497,739	I. 326,010	21.7
St. L. & San Fran.	652,628	592,783	I. 59,845	10.1

Two months ending Feb. 28:

N. Y. & N. England	\$363,365	\$314,130	I. \$49,235	15.7
Net earnings	54,458			

Month of February:

N. Y. & N. England	\$173,615	\$149,908	I. 23,707	15.8
Net earnings	22,193			

South Carolina:

	129,840	115,064	I. 14,776	12.6
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Month of March:

Chl., Mil. & St. Paul	\$917,000	\$900,674	I. \$16,326	1.8
Denver & R. G.	398,493	108,161	I. 290,332	137.1
Houston & Tex. Cent.	325,309	237,745	I. 87,564	36.8
Ind. & Gt. No.	225,909	117,592	I. 108,317	91.8
Louisville & Nash.	950,649	604,425	I. 346,224	57.3
Mobile & Ohio	226,398	168,301	I. 58,097	34.5
Northern Pacific	143,835	119,358	I. 24,477	20.6
St. L., I. M. & So.	692,000	451,560	I. 240,440	53.2
St. L. & San Fran.	261,959	197,444	I. 64,515	32.7

Third week in March:

Gal., Har. & San Antonio	\$23,589	\$23,410	I. \$179	0.8
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Week ending March 25:

Great Western	\$110,787	\$106,546	I. \$4,241	3.9
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Week ending March 26:

Chl. & Gt. Trunk	\$31,360	\$29,646	I. \$1,714	5.8
Grand Trunk	217,488	209,882	I. 7,606	3.6

Coal Movement.

Coal tonnages for the week ending March 26 are reported as follows:

	1881.	1880.	Inc. or Dec.	P. c.
Anthracite	365,616	360,419	I. 5,197	1.4
Semi-bituminous	100,217	13,190	I. 87,027	659.3
Bituminous, Penna.	54,444	59,777	D. 5,333	8.9
Coke, Penna.	50,433	43,334	I. 7,198	16.9

Anthracite trade is very dull, buyers generally holding off for lower prices as they can do now, the demand being less pressing. Semi-bituminous coals are active with the opening of navigation and the shipments generally are large. In the corresponding week last year Cumberland and Clearfield production was stopped by strikes.

The anthracite coal tonnage of the Belvidere Division Pennsylvania Railroad for three months ending April 2 was:

	1881.	1880.	Inc. or Dec.	P. c.
Coal Port for shipment	1,075	1,406	D. 331	23.6
South Amboy for shipment	150,532	94,712	I. 55,820	58.8
Local points on N. J. lines	198,190	117,939	I. 80,251	68.0
Co.'s use on N. J. lines	27,767	25,800	I. 1,967	7.6

Total... 377,564 239,847 I. 137,717 57.3

Of the total this year 307,269 tons were from the Lehigh, and 70,295 tons from the Wyoming Region.

Some heavy contracts in gas coal are reported. Lower prices generally are made, on account of the trouble between the Baltimore & Ohio and the Pennsylvania over coal business.

Chicago and Milwaukee March Receipts.

Receipts of grain, flour and hogs at Chicago and Milwaukee during the month of March for four successive years have been:

	1878.	1879.	1880.	1881.
Chicago:				
Grain, bush.	7,125,047	6,196,143	9,223,379	4,508,605
Flour, bbls.	279,941	318,190	281,768	517,004
Hogs, No.	348,396	370,564	510,561	324,268
Milwaukee:				
Grain, bush.	1,360,154	1,237,573	1,077,465	741,207
Flour, bbls.	176,887	215,298	180,955	238,162
Hogs, No.	18,496	10,495	28,707	19,068

Chicago receipts of grain for the month were thus this year not half so great as last, and much smaller than in any of the other years, its flour receipts, however, in spite of the blockade of the roads by which it receives chiefly, were four-fifths more than last year. Its hog receipts, though two-fifths less than last year, were not much smaller than in previous years.

At Milwaukee the receipts of grain were nearly a third less than last year; of flour, a quarter larger; of hogs, 60 per cent. less.

Grain Movement.

For the week ending March 26 receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past eight years:

Year.	Northwestern receipts.	Northwestern shipments.	Atlantic receipts.
1874.....	2,567,282	1,238,839	1,997,297
1875.....	1,597,095	1,054,587	1,764,133
1876.....	1,833,415	1,250,759	1,758,767
1877.....	1,844,306	1,182,741	1,423,453
1878.....	4,339,889	2,528,517	4,149,897
1879.....	3,030,710	2,890,223	4,363,816
1880.....	4,912,230	4,172,164	5,850,668
1881.....	2,906,494	2,046,187	5,772,157

The receipts of the Northwestern markets are smaller than in the corresponding week of three preceding years, and so also are their shipments. Their receipts are much smaller than the week before, but with that exception are the largest since January; their shipments are a fifth smaller than the week before, but with that exception are the smallest of the year.

The Atlantic receipts are smaller than in the corresponding week of last year, but are larger than in any other corresponding week, and they are 30 per cent. larger than the week before and are much the largest of the year. Only two or three times in the history of the trade have the rail deliveries at the seaboard been larger.

Of the Northwestern receipts St. Louis had 29 per cent., Toledo 24, Chicago 20.9, Peoria 12.8, Detroit 5.7, Milwaukee 4.7, and Cleveland 3 per cent. Again the Chicago and Milwaukee receipts are exceptionally small—less than half as great as the week before; but the Toledo receipts are the largest of the year, and so, with one exception, are the St. Louis receipts.

Of the Atlantic receipts New York had 37.8 per cent., Baltimore 25.3, New Orleans 13.1, Philadelphia 12.6, Boston 10.2, Portland 0.8, and Montreal 0.2 per cent. Compared with the previous week there is an increase everywhere, but largest proportionately at New York, Boston and New Orleans. New York's receipts are much larger than in any other week since navigation closed, and are a larger percentage of the whole than in any of the four weeks preceding. Baltimore's receipts are also the largest since navigation closed, and the New Orleans receipts are the largest since April of last year, and have been exceeded but twice since 1879; there have been four weeks of this year, however, when its receipts were a larger proportion of the whole.

Exports from Atlantic ports for five successive weeks have been:

	March 30.	March 23.	March 16.	March 9.	March 2.
Flour, bbls.	129,789	108,896	148,441	113,111	114,946
Grain, bush.	4,316,414	3,786,665	3,975,208	3,667,058	2,808,277

The grain exports have not been so large before, since the middle of November.

For the eight weeks ending March 30 the exports compare as follows with those of the corresponding eight weeks of last year:

	1881.	1880.	Inc. or Dec.	P. c.
Flour, bbls.	936,421	416,012	I. 520,409	125.9
Grain, bush.	24,882,513	28,024,339	D. 3,141,826	11.2

The great increase in flour exports is equivalent to 2,341,840 bushels of wheat, so that the net decrease was but 800,000 bushels. Wheat shows an increase of 23 per cent., and corn a decrease of 33 per cent. in the amount exported.

Baltimore grain receipts in March are reported as follows, flour in barrels and grain in bushels:

	1881.	1880.	Inc. or Dec.	P. c.
Flour.....	126,248	132,090	D. 5,842	4.4
Wheat.....	1,820,692	1,594,703	I. 225,989	14.2
Corn.....	3,187,400	3,540,048	D. 352,648	9.9
Other grain.....	86,103	200,686	D. 114,583	57.0
Total grain.....	5,094,105	5,335,437	D. 241,332	4.6

Total, flour reduced to wheat..... 5,725,435 5,995,887 D. 270,452 4.5

Total grain receipts for quarter ending March 31 (flour excluded) were: 1881, 9,641,790; 1880, 10,281,766; decrease, 639,996 bushels, or 6.2 per cent.

Southwestern Association Rate.

The tariff of April 1, on east-bound freight, shows no change from the tariff of Nov. 22 in the rates to St. Louis, but in rates to Chicago there is a reduction from 26½ to 25½ cents per 100 lbs. on seventh class; an increase from 25½ to 26½ on the ninth class; a reduction from 25½ to 25 on the tenth and on wheat, and from 20½ to 20 on corn, and an increase from 22½ to 23 on ore and base bullion. To Milwaukee the changes are in the same directions, but are 1 cent instead of ½ cent, and to Toledo there is a reduction of 2½ cents on seventh class and an advance of 2½ on ninth, and reductions of 1½ on tenth class, wheat and corn, and ½ cent on ore. These changes are made doubtless to suit the new trunk line rates.

Kansas City Passenger Rates.

The ticket agents of the road from Kansas City eastward have agreed to maintain the following rates from Kansas City: To Chicago, \$5; to St. Louis, \$4; Jacksonville and Springfield, \$7; to places further east, \$5 plus the rate from Chicago or \$4 plus the rate from St. Louis, whichever made the lowest rate, with limit as to time, the tickets being sold at the old regular rate, with a draw-back collectable after the journey.

THE SCRAP HEAP.

A Narrow Escape.

The passengers on the Philadelphia train which arrived here on Friday at 1:05 p. m., witnessed an accident on the road, a short distance below Schuylkill Haven, which threw the train hands into a fever of excitement, and for the space of a few seconds caused the engineer to turn his head from the scene. As the train neared the crossing below Schuylkill Haven, a heavy wagon, drawn by three mules, was noticed making its way across the track. Two of the mules were harnessed to the pole; the third acted as a leader. A boy rode one of the pole mules. The leader had reached the track before the boy noticed the approaching train. His attention was attracted by the shrill signal "down brakes." He put on the brakes also and tried to pull the lead mule off the track. The mule had evidently made up his mind to cross, even if he ran the chance of throwing the train off the track. The engineer and rest of the trainmen gave the boy up for lost as they noted his unsuccessful efforts to pull the mule back. He kept his seat and up to the last moment before the train struck his leader kept pulling on the rein. The lead mule was struck broadside by the pilot and thrown a distance of 25 ft. The shock was so sudden and tremendous, that the connection between the leader and the pole mules was broken as if composed of paper. As the train swept by the cars almost grazed the heads of the team, and the boy could have touched the passengers with his outstretched hand. It was a close shave. The train was stopped and many of the

passengers went back to find out how the boy survived. He was found gazing at the dead body of his leader. As the passengers congratulated him upon his escape from a frightful death he showed his appreciation of the situation with the remark, "He was my best mule."—*Pottsville (Pa.) Miners' Journal*, April 1.

Snow Boating.

A La Crosse telegram to the St. Paul Pioneer-Press tells this interesting story:

"Railroad men coming in from the West tell an interesting story of how a party of four got from Fulda to Fairmont not long since. Conductor Kennedy and brakemen Allan and Statham being at the former place, and receiving telegraphic orders to report at the latter without delay, endeavored to secure some conveyance. They found this utterly impossible, as there was no road and no teamster would trust his horses across the prairies on the crust. To avoid the necessity of walking the distance of sixty-three miles they constructed out of barrel-staves and fence-boards two rude and clumsy conveyances, somewhat after the manner of ice-boats. To these they rigged sails 12 by 14 feet made from common sheeting obtained at the store, and obtaining an addition to the party of an aged German anxious to reach the outside world, the four spread their canvas and started out. The crust was strong enough to bear the weight of each 'boat' with two persons, and a strong northwest wind was in their favor. The distance was made without accident in eight hours, giving an average running time of about eight miles per hour, which in favorable places was increased to twelve. A telegram had notified Fairmont that they were coming, and the town turned out en masse to meet the voyagers."

Extremes.

Extremes met for a fact on the Chicago, Burlington & Quincy, Iowa Division, a few days ago. In the dining-car at one end of the train passengers were regaling themselves with green tomatoes, cucumbers and watermelons, while seven stalwart locomotives at the other end were struggling to get the train through show-drifts.—*Chicago Tribune*.

A special from Jacksonville, Fla., under date of March 21, says that "Jay Gould has just concluded a contract by which he is to control every orange grove in Florida for 30 years. He drew his check for an enormous sum, and will leave the state as soon as he has staked his alligator farm—another new scheme, which has startled every aquarist in the United States, as it is apprehended that alligators will come high next year. Some of Mr. Gould's alligator traps occupy an acre of ground."—*New York World*.

A Station Train Indicator.

An extremely useful device, the invention of Mr. A. A. Faunce, Depot-Master of the Fitchburg Railroad in this city, has been placed over the clock at the station. It is an automatic bulletin, which exhibits the telegraphic reports of all Western and Northern trains, tells the time they are due, and, if late, the number of hours or minutes. All questions relative to trains asked by patrons are answered by a glance at the bulletin.—*Boston Advertiser*.

OLD AND NEW ROADS.

Allegheny Valley.—The statement telegraphed from Philadelphia last week and received by us too late for verification, that this road would hereafter be worked directly by the Pennsylvania Railroad Company, is at least premature. The road will continue to be worked independently at present, although controlled by the Pennsylvania.

Notice is given that the cash fund applicable to the payment of the interest due April 1, 1881, on the income bonds of the company, being insufficient to pay the whole of such interest, it will be distributed *pro rata*, allowing \$9 on each \$35 coupon, and proportionately for those of lower denominations, and the deficit paid in orders upon the Trustees for bonds of the same issue and scrip convertible into such bonds for sums less than \$100, at the office of the company, Pittsburgh, on and after April 1, according to the terms of the bonds; \$500 and \$1,000 bonds may be obtained for those of lower denominations, upon application to the Safe Deposit Company, No. 83 Fourth avenue, Pittsburgh.

American Steamship Co.—This company is controlled by the Pennsylvania Railroad Company, and runs a line of steamships between Philadelphia and Liverpool. Its report for 1880 shows gross earnings \$942,984; working expenses, \$730,759; net earnings, \$212,225. Agencies, wharf expenses, etc., are charged with \$102,018; extraordinary expenses, \$78,107; interest on bonds, \$59,610, a total of \$269,735, making a deficit of \$57,510 on the year's operations.

Atlanta & Charlotte Air Line.—Immediately after the lease of this road was concluded, as noted last week, Messrs. Garrett, as owners of \$89,000 bonds of the company, made application for an injunction to prevent the transfer of the road. The New York Supreme Court granted the usual preliminary injunction and order to show cause why it should not be made perpetual. No officer of either corporation could be found in New York, however, and the order could not follow them out of the state. The Richmond & Danville Company made a deposit of \$500,000 as security for performance of the conditions of the lease, and took possession of the road April 1. No changes are made in the management for the present.

Atlantic, Mississippi & Ohio.—In the United States Circuit Court in Richmond, Va., April 4, an order was agreed on confirming the sale of this road under foreclosure. The order directs that \$5,000,000 of the purchase money shall be deposited with the Union Trust Company in New York and \$3,605,000 with the Fidelity Insurance & Trust Company in Philadelphia, subject to the order of the Court. Upon evidence furnished that these deposits have been made, a deed of sale will be given to the purchasers and the property formally transferred to them. The order was formally entered on April 5.

Atlantic & Pacific.—Messrs. Winslow, Lanier & Co., J. & W. Seligman & Co., and Kidder, Peabody & Co. have placed in the market \$10,000,000 of this company's 6 per cent. first-mortgage railroad and land grant sinking fund gold bonds, interest January and July, and the issue limited to not exceeding \$25,000 per mile. The company is now constructing its Western Division railroad and telegraph line from Albuquerque, on the Atchison, Topeka & Santa Fe road in New Mexico, through Arizona and California to the Pacific coast, and 150 miles of it are now open for business and construction, progressing at the rate of 1½ miles per day. It is being built for cash. The Atchison, Topeka & Santa Fe and the St. Louis & San Francisco roads will be opened in connection with this division as a continuous through line from the Mississippi and Missouri Rivers to the Pacific. The company has a total land grant of about 42,000,000 acres in alternate sections, and the first patent for land was granted to the western division Jan. 10, 1881. Under powers conferred by act of Congress these bonds are secured by a first mortgage on every particle of the property pertaining to the Western Division of the company. They are re-

ceivable at par and accrued interest in payment for lands, and will be retired with the proceeds of land sales at not exceeding 110. They have thirty years to run, and cannot be called for redemption. The proceeds of the bonds must be deposited with the United States Trust Company of New York City, and the Safe Deposit and Trust Company of Boston, and must be used solely for the construction, equipment and maintenance of the road, and for the payment of their interest until one year after the completion of the division to the Pacific Coast. The proceeds of land sales may be first used to provide for any deficiency in the net earnings for the payment of the interest on these bonds. The payment of the interest has been guaranteed by the Atchison & Topeka and Santa Fe, and the St. Louis & San Francisco companies, to the extent of 25 per cent. of all earnings from business transacted with the western division during six months preceding the maturity of the coupons. The bonds are offered at 102½ and accrued interest.

Boston, Hoosac Tunnel & Western.—The Hoosac Tunnel & Saratoga, the Mohawk & Lake Erie and the Utica & Syracuse companies have all voted to consolidate with Boston, Hoosac Tunnel & Western. The title remains unchanged. The new companies own no completed road; they were chiefly organized to build the extensions from Mechanicsville, N. Y., to Schenectady and thence westward.

Central, of New Jersey.—The Philadelphia *North American* of April 6 says: "The contract of the New Jersey Central with the Philadelphia & Erie in Mr. Gould's trunk-line arrangement would have been signed by this time had not the magnates of both parties taken it into their heads to make an important modification. To the surprise of those who from the first had pooh-poohed the idea of the Pennsylvania's allowing any other trunk line to use the Philadelphia & Erie, the officials of the former road not only did not deny the reports of such a consummation, but spoke with enthusiasm when the subject was referred to, and admitted that the contract would be signed in a few days. It was confidently expected that the autograph of the officials whose consent was necessary would be affixed to the important document at the beginning of this week, but now it is authoritatively given out that this will not be done for a fortnight. The reason alleged for this postponement is that the Pennsylvania is to be still further interested in the constitution of the trunk line, by the substitution of the Northern Central from Williamsport to Herndon, the same road's Shamokin branch from Herndon to Mount Carmel, and the Reading's Catawissa line from Williamsport to Tamaqua. The Catawissa road is 101 miles long, and the new route as above proposed is 99 miles. The saving of two miles is hardly considerable from the standpoint of the Gould interest, but the increased revenue to the Pennsylvania Railroad is the consideration which is most strongly pressed for the modified form of contract. The talk to this effect has had some share in the strength of Pennsylvania and Northern Central stocks for several days past."

Chicago & Grand Trunk.—It has been decided to establish the repair shops for this road, or rather division of the Grand Trunk, and also the division headquarters, at South Bend, Md. Ten acres of land for the shops have been given and work on the buildings will be begun at once.

Chicago, Milwaukee & St. Paul.—The new mortgage on the Chicago & Pacific Western Division recites the purchase of the Dubuque Southwestern and the Sioux City & Dakota roads, and then refers to its projected lines as follows:

"Whereas, said party of the first part proposes to construct a line of its railway from a point on the Mississippi River, in the state of Wisconsin, opposite or north of Dubuque, across said river in a westerly direction to Farley, in the county of Dubuque, in the state of Iowa; and to extend its line of railway by the construction of a new road from Marion, in a westerly direction, through the counties of Linn, Benton, Tama, Marshall, Story, Boone, Dallas, Guthrie, Audubon, Carroll, Crawford, Shelby, Harrison and Pottawatomie to the Missouri River, at or near Council Bluffs, with a branch from some point on said line in a westerly direction, to and across said Missouri River, and thence westerly in the state of Nebraska; with branches from said main line to Des Moines and Marshalltown, in the state of Iowa; and also with another branch from said main line, at some point between Marion and the Missouri River, in a northwesterly direction, to Sioux City, so as to connect it at that point with said railway of the party of the first part; and also proposes to extend its said railway from Yankton, in a westerly direction, to Running Water, and thence across the Missouri River to Niobrara, in Nebraska; and thence westerly; and also from said Yankton, in a northerly direction, to a point on the line of the Iowa & Dakota Division of the railway of the party of the first part, at or near Mitchell, and thence northerly; and also proposes to extend its line of railway from Flandreau, in a northerly direction, to a point at or near Milbank Junction, in said territory; and also, in a westerly direction, from Madison, in said territory of Dakota, through the counties of Lake and Miner, to the Missouri River, and thence westerly; and from Rock Valley, in the state of Iowa, in a northerly direction, to the state line of Minnesota, and thence northerly in Minnesota; and also from said line running westerly from Marion, in Iowa, at some point at or near Perry, in a northeasterly direction to or near Webster City, and thence to Mason City, in Cerro-Gordo County; and also proposes to extend its said line by the construction of a new railway from a point at or near said Marion, in Iowa, in a southwesterly direction, by way of Sigourney and Ottumwa, in said state, to the state line, and thence southwesterly to and across the Missouri River, in the state of Missouri."

The deed conveying the rights and franchises of the Southern Minnesota Railway Extension Company to the Southern Minnesota Railway, and that conveying the latter to the Chicago, Milwaukee & St. Paul Company have been duly executed and recorded in Minnesota. The transaction was completed some time ago.

Chicago, Rockford & Northern.—The bill filed in the United States Circuit Court in Chicago to foreclose the second mortgage on this road has been dismissed by consent. The trustees under this mortgage will now file a petition to be joined in the foreclosure suit begun in the Illinois Circuit Court by the trustees under the first mortgage.

The Chicago, Milwaukee & St. Paul Company attempted to take possession of the road under a lease on April 1. This was, however, forcibly resisted, and a very lively war ensued, which was speedily carried into the courts.

Cincinnati, Georgetown & Portsmouth.—The Cincinnati *Gazette* of April 2, says: "A mortgage was left for record yesterday from the Cincinnati, Georgetown & Portsmouth Railroad Company (formerly the Cincinnati & Portsmouth narrow gauge road), to Abner I. Benyon, Trustee, to secure the payment of \$500,000 in mortgage bonds, to be issued by said railroad. These bonds are to be 500 in number, and are for the sum of \$1,000 each, and run for 20

years, from April 1, 1881, drawing interest at 6 per cent. per annum, payable semi-annually, and are made payable at the Pacific National Bank of Boston."

Cincinnati Southern.—A meeting of the Cincinnati Railway Company, which now operates this road, has been called for May 3, to vote on the question of increasing the capital stock from \$2,000,000 to \$5,000,000, with a view to bidding for and taking a permanent lease of the road under the new law.

The Trustees have given notice to the Cincinnati Railway Company that the present lease or license to work the road will terminate on Oct. 1, 1881. The Trustees are required to give six months' notice of the termination of the license. This action is taken to indicate the purpose of the Trustees to effect a sale, or a lease for a long time, of the road, under the provisions of the act recently passed by the Legislature.

Columbus & Western.—It is understood that the Central, of Georgia, which controls this road (formerly the Savannah & Memphis), has made arrangements for its extension from the present terminus at Goodwater, Ala., northwest to Birmingham, about 75 miles. A large part of this extension was graded several years ago. Bonds to the amount of \$2,000,000 are to be issued on the road, which has now no debt.

Connecticut River.—It is reported that an agreement is under consideration by which this company will grant the Central Vermont the use of the Sullivan Railroad (which it now owns) on the expiration of the present lease, and will, in return, obtain the use of the 10 miles between South Vernon and Brattleboro, which now separate its road from the Vermont Valley.

Delaware, Lackawanna & Western.—The car shops of the Morris & Essex Division at Dover, N. J., caught fire on the evening of April 4, and the wood machine shop, erecting shop, blacksmith shop, engine house and machine shop were destroyed, with a number of freight cars. The paint shop, passenger car shop and some smaller buildings were saved. The loss is estimated at \$80,000.

Delaware Western.—The bill authorizing this company to build a line down the Peninsula parallel to the Delaware road, which last week passed the Delaware Senate and went to the House, has been withdrawn.

Denver & Rio Grande.—This company has now trains running on the San Juan Division to Chan a, Col., 93 miles from Alamosa, and 13 miles beyond last year's terminus at Alta.

On the Gunnison Division trains now run from South Arkansas, Col., to Silver Creek, 13 miles, or 7½ miles beyond last year's terminus at Poncha. A branch of this division is also completed and opened for business from Poncha to Maysville, 7 miles.

Des Moines & St. Louis.—This company is to build a line from Albia, Ia., to Des Moines, about 68 miles, in the interest of the Wabash, St. Louis & Pacific Company. It will be parallel to the Chicago, Burlington & Quincy's branch between the same places. Work is to be begun shortly.

Fernandina & Jacksonville.—This road is now completed and was to be opened for traffic April 6. It extends from Jacksonville, Fla., north 21½ miles to Hart's Road, on the Atlantic, Gulf & West India Transit road, 11½ miles from Fernandina. Trains will use the track of that road, making the line from Jacksonville to Fernandina 33 miles. The road has been built by George P. Flower & Co., contractors.

Fitchburg.—This company has contracted for 4,500 tons of steel rails, to be delivered for use this season. Gangs of men are now employed in grading and double-tracking west of Fitchburg, and it is expected before the close of the year to have a continuous double-track from Boston to Royalston, 73½ miles, and a piece 7½ miles long between Pequig and Orange. A new survey has been made between Royalston and Baldwinville, by which the distance has been shortened a third of a mile, four bridges over Miller's River and five grade-crossings avoided and the grades reduced from 33 to 18 feet a mile in favor of east-bound freight. In addition to the ten new locomotives recently put upon the road, five first-class passenger and four consolidation engines are contracted for, and one is building at the company's shops. During the winter 550 freight cars have been added to the rolling stock, and four new passenger cars will be delivered May 1.

Galveston, Harrisburg & San Antonio.—The La Grange Branch is now completed to La Grange, the county seat of La Fayette County, Tex., 28 miles from the main line at Smith Junction and 12 miles beyond last year's terminus at Ellinger. This increases the company's line to 243 miles operated.

Georgia.—Officers of this road state that no proposition for a lease of this road to the Central Railroad Company, of Georgia, has been received, and that no lease of the road is contemplated. Recent conferences between the officers of the Georgia and the Central companies, which gave occasion for the reports of the lease, related entirely to the Western Railroad, of Alabama, which is owned jointly by the two companies.

Georgia Railroad Combination.—A dispatch from Augusta, Ga., April 6, says: "For several weeks there have been various rumors here in reference to railroad affairs. Central and Georgia Railroad stocks advanced rapidly, Central going up from 110 to 121, and Georgia from 115 to 143. This afternoon Central declined to 115 and Georgia to 135. The rapid advance in Georgia was caused by efforts to purchase a controlling interest. It is stated and believed that parties favorable to the interest of the Central Railroad have secured sufficient stock to control the Georgia Railroad. The parties purchasing have large interests in the Central and South Carolina roads. The combination embraces the South Carolina, Central, and Georgia railroads, which will be worked in harmony with the Louisville & Nashville combination."

Green Bay & Minnesota.—The Court has finally confirmed the sale of this road to John I. Blair and others under foreclosure of mortgage. It is reported that the purchasers have agreed to transfer the road to the Chicago & Northwestern Company.

Hartford & Connecticut Valley.—The bill authorizing this company to extend its road from Hartford to Holyoke, after being rejected by the Connecticut Senate, has been reconsidered and passed by both houses of the Legislature.

Havana, Rantoul & Eastern.—This road has been bought by the Wabash, St. Louis & Pacific, and that company will probably take possession about April 15. It extends from the Wabash main line at West Lebanon, Ind., west to Leroy, Ill., 76 miles. It is of 3 ft. gauge, but will be changed to standard gauge by the new owner.

Houston, East & West Texas.—This road is now completed and trains are running to Moscow, Tex., 88 miles

northeast from Houston and 16 miles beyond last year's terminus at Livingston.

Negotiations are pending for a further extension from Moscow to the Louisiana state line in the direction of Shreveport. The extension depends on the willingness of the Shreveport people to build from their city to the state line.

Humeston & Shenandoah.—This company has been organized to build the extension of the Missouri, Iowa & Nebraska line from Humeston, Ia., west to Shenandoah, about 80 miles. The road is to be owned and used jointly by the Chicago, Burlington & Quincy and the Wabash, St. Louis & Pacific.

Indiana Coal & Railway.—This company has been organized to build a railroad from Terre Haute, Ind., east by south to Columbus, about 80 miles. The capital stock is to be \$1,500,000.

Kansas City, St. Joseph & Council Bluffs.—This company has been completed and opened for business the two branches whose construction was begun last year. The Nodaway Valley Branch is 32 miles long, from Bigelow, Mo., to Burlington Junction, and completes a cross line to the main line of the Chicago, Burlington & Quincy in Iowa. The Tarkio Valley Branch is 23 miles long, from Corning, Mo., north to the Iowa line.

Littleton & Franconia.—This company has been organized to build a branch road from Littleton, N. H., on the Boston, Concord & Montreal, to the Franconia House in the White Mountains, about 15 miles.

Maine Railroad Taxation.—At Augusta, Me., April 1, the Governor and Council, as required by law, submitted to the State Treasurer the amount of excise tax for 1881 which the several railroads in the state shall, under the provision of the "Act relating to the taxation of railroads," pay into the treasury of the state for the privilege of exercising their respective franchises in Maine. They reported the following:

	Amount of tax.
Bangor & Piscataquis.....	\$207.00
Boston & Maine.....	17,245.35
Bucksport & Bangor.....	46.45
Knox & Lincoln.....	615.56
Portland & Ogdensburg.....	932.20
Portland & Rochester.....	690.42
Rumford Falls & Buckfield.....	1,150.37
Somerset.....	67.54
St. Croix & Penobscot.....	51.98
European & North American.....	51.82
Sandy River Valley.....	3,040.33
Eastern.....	23.13
Maine Central.....	16,780.39
Grand Trunk.....	20,772.35
Aroostook River.....	9,569.66
Houlton Branch.....	20.32
Orchard Beach.....	17.30
Total.....	\$71,278.26

In addition to this tax the buildings owned by the companies, and all land and fixtures outside of the located right of way, are subject to tax like other property in the towns where they are situated.

Mexican Central.—At the annual meeting in Boston President Nickerson presented the following report:

The survey of your line was commenced at the City of Mexico, under Howard Schuyler, Chief Engineer, with a small force, the last of June, 1880. The work of grading and bridging across the valley of Mexico occupied much time, owing to the great number of culverts and bridges to be built, made necessary by the system of irrigation; and this delay was also aggravated by the rainy season. Track-laying was commenced about Sept. 15, 1880. The great revival of railroad building in the United States made it difficult to secure competent engineers and skilled workmen for Mexico; and the manufacturers of all kinds of rolling stock and machinery were so full of engagements that it was quite impossible to get our orders executed promptly. The facilities for handling our supplies at Vera Cruz were inadequate; and our vessels were delayed a long time in discharging their cargoes, some of them nearly three months. The want of knowledge of the language on the part of our engineers and workmen, the lack of experience in railroad work on the part of the laborers of the country and many other difficulties have seriously delayed the progress of our work.

On Sept. 15 Rudolph Fink was elected General Manager, and he reached his field of labor about the middle of October, 1880. According to the latest accounts the grading is substantially completed for 55 miles, and 40 miles of track have been laid. It is expected that the construction of the road will be completed about April 15 to Tula (50 miles), and business opened at that city May 1.

In November the Mexican government gave the company authority to commence construction at Paso del Norte, and immediate steps were taken for work at that point. The Hon. George T. Anthony was elected General Superintendent of the Chihuahua Division, and has already organized a force of engineers and made a preliminary survey, which shows a very favorable section for rapid construction. There are now being shipped to New Orleans 5,000 tons of steel rails and their fastenings, and contracts are being made for other necessary materials. It is hoped that the Atchison, Topeka & Santa Fe system of roads will be completed to El Paso in May; and we expect to have a section of our line graded and ready to commence laying track in June.

Engineers are at work locating our line from the Gulf of Mexico at Tampico to the Pacific, via the city of San Luis. There has been ordered to Tampico 2,000 tons of steel rails, with their fastenings, and it is expected to commence construction on that section at an early date. A force of engineers, under C. A. Sweet, Chief of the party, are in the field making a reconnaissance between Laredo and our main line near Durango, after which the party will explore the country between Laredo or Camargo, and a point south upon the Gulf line in the State of San Luis Potosi.

The government of Mexico has carried out faithfully the provisions of the concession, and treated the company with great fairness; and our relations with the government and the people of Mexico are harmonious.

From the balance sheet it appears that the total cost of road to date is \$1,494,606.97. The total deposit as guarantee to Mexican government, representing \$300,000 Mexican currency, is \$264,000, and the cash assets are \$212,755.79; making the total assets \$1,971,362.76. The subscriptions, namely, 35 per cent. of subscriptions to 1,270 blocks of \$4,250 each, less \$5,950 unpaid, amount to \$1,883,175. Total liabilities, \$1,971,362.76.

Minneapolis, St. Paul & Sault Ste. Marie.—This company has been organized to build a railroad from Abbot'sford, Wis., on the Wisconsin Central, to Wausau, and thence northwest to the Sault Ste. Marie, about 340 miles in all.

Missouri Pacific.—In the suit brought by N. A. Cowdry and others, stockholders of the old Pacific Company of Missouri, to set aside the foreclosure of the third mortgage, by which the road passed to the present company, the United

States Circuit Court in St. Louis has rendered a decision sustaining the validity of the foreclosure, and declaring the present company rightful owners of the property.

Nantasket Beach.—This road, as consolidated and completed, comprises about eight miles of track and extends from Windmill Point, in Hull, Mass., to the Old Colony House, in Hingham, where a connection is made with the Old Colony road. During the season trains will leave Windmill Point for Old Colony House station every 20 minutes, and leave on return at like intervals of time. The work of extension has been pushed forward to completion against various obstacles, such as extremely unfavorable weather, disputes in regard to right of way and natural obstructions—rocky ledges and water courses. The ledge at the Hingham end of the route was extremely difficult to deal with, as were also the water courses, which have been crossed by five substantial bridges, aggregating a mile in length. The four miles from the end of the old road to the Old Colony connection have been built this year.

New York & New England.—The usual yearly bill providing for the sale of the state stock in this company has just been defeated by the Massachusetts Senate by a decisive vote.

Northern Pacific.—A history of the common stock of this company, condensed from the statements made in the complaint in the Villard suit, may be of interest at the present time. In 1867 Congress chartered a line of railroad and telegraph from a point on Lake Superior to Puget Sound, with the right to construct a branch to Portland, Oregon, under the name of the Northern Pacific Railroad Company. To aid in the construction of this line lands were granted to the amount of 10 sections per mile on each side of said road in the states, and of 20 sections per mile on each side in the territories, the land thus granted amounting to nearly 47,000,000 acres. J. Gregory Smith, of St. Albans, Vt., and his associates, who procured this charter, were at an expense therefor of \$102,000 in cash. In order to provide for the building and development of the road the enterprise was divided into 12 shares of \$8,500 each, by an agreement made Jan. 10, 1867. These shares were distributed as follows: J. Gregory Smith, 4½ shares; W. B. Ogden, 1½ shares, and 1 share each to R. H. Burdell, A. N. Barney, R. H. Barney, George W. Cass, J. Edgar Thompson, and Edward Reilly. It was mutually agreed by these subscribers that the best efforts of each and all should be given to obtain from Congress the passage of a bill granting aid to the company for construction purposes, and each party, it was agreed, should contribute, according to his interest, the necessary funds for that purpose, provision being made that not over \$12,500 should be assessed on a single share. Having thus secured control of the charter, the syndicate, on May 20, 1869, made an agreement with Jay Cooke & Co., of Philadelphia, by which that banking firm became the Northern Pacific's sole fiscal agents. The 12 original shares were increased to 15, the additional 3 being assigned to Jay Cooke & Co. The capital stock of the company it was agreed should be appropriated as follows: The representatives of the 15 shares should subscribe for \$80,001,000, an equal portion to each share, which should be issued in full paid-up stock. Each of the 15 shares was to receive \$124,500 immediately, and \$54,000 additional was to be issued to each share as often as 25 miles of railroad were constructed, and the residue of the capital stock, \$10,999,000, was deliverable to Jay Cooke & Co., and as often as the fiscal agents sold and placed to the credit of the company the proceeds of \$1,000 of stock the agents themselves were entitled to receive \$200 of the same stock.

The bonds were then issued and sold by Jay Cooke & Co. After the default on interest, at a general meeting of the bondholders held March 18, 1875, a committee was appointed to consider this matter and recommend a plan. This committee consisted of Johnston Livingston, J. N. Hutchinson, William McKnight, John M. Denison, Abner Coburn, William Windom, and George Stark. On April 16 preceding the United States Circuit Court had appointed a Receiver for the company. The order making this appointment was given under proceedings brought by the Trustees of the Northern Pacific bondholders. On May 12 following the Court granted a final decree under which the road and all its property was directed to be sold for the benefit of the bondholders. This decree was in accordance with the desire of the committee. They reported that they considered this "an arrangement between all parties in interest which shall satisfy every equity, avoid tedious litigation, and secure the extension of the road. This extension is indispensably necessary to restore value to your investments."

The bondholders subsequently held a meeting at which the plan recommended was adopted. That plan proposed that Johnston Livingston, of New York; Frederick Billings, of Woodstock, Vt.; George Stark, of Boston; William Thaw, of Pittsburgh; J. N. Hutchinson, of Philadelphia, and John N. Denison, of Baltimore, be appointed a committee to buy the road at the foreclosure sale and organize a new company, substituting preferred stock for the former bonds.

Other detail matters were provided for, and it was arranged that preferred stock should be created and issued to the amount of \$51,000,000, the entire stock of the company, preferred and common, being \$100,000,000. This preferred stock was to be entitled to dividends not exceeding 8 per cent. per annum, as the net earnings might suffice to pay. After and during the time the income of the road was sufficient to pay the 8 per cent. dividend on both preferred and common stock the surplus was to be divided on both alike per share, according to the number of shares issued of each. Common stock was to be issued to the amount authorized by the charter, less the \$51,000,000 preferred. "Certificates of this stock," was the verbiage of the plan adopted, "shall be issued to holders of, or to those now entitled to, certificates, share for share, and the residue ratably to those originally entitled thereto, or their assigns."

The purchase of the road and its property was made Aug. 12, 1875, by the committee, in accordance with the provisions of the plan. The price paid was \$100,000. There was at this period 550 miles of road in paying operation, substantially free from debt, and attached was a domain of nearly 10,000,000 acres of land. In an official statement of the Northern Pacific Railroad Company made July 16, 1879, President Billings enumerates the proportion of preferred and common stock of the company as recognized by the management: Preferred, 438,000 shares, 72,000 shares of preferred having been extinguished by exchange for lands; common, 490,000 shares. Of the 490,000 shares of the common the President's report states that there were entitled to be issued 299,526 shares, and of this amount 288,844 shares had been issued, and 15,682 shares were then being issued. The remaining 190,474 shares of this common stock, regarding the issuance of which, or a portion of which, the present litigation has arisen, were to be issued. It was at this time that the Northern Pacific Railroad Company made application to have the entire amount of its preferred and its common stock (including the residue of the common stock) placed on the regular list of the New York Stock Exchange.

Ohio & Mississippi.—Receiver King reports for February as follows:

Cash, Feb. 1.....	\$13,063
Receipts from all sources.....	498,215
Total.....	\$511,278
Disbursements.....	491,998

Balance, March 1..... \$19,280
Receipts exceeded the disbursements by \$6,217 for the month. Of the payments \$750 were on account of old vouchers prior to the receivership.

Notice is given to second-mortgage bondholders that the coupon due April 1, 1881, will be paid at the office, 52 William street, New York.

Pennsylvania.—The Girard Point Storage Company, which this company controls and whose railroad tracks it leases, has bought the land, wharves, warehouses, tracks and other property of the International Navigation Company at Girard Point and Point Breeze in the extreme southern part of Philadelphia; tracks already lead to the property. It is to be improved by building additional warehouses and an elevator of 1,500,000 bushels capacity.

Philadelphia & Reading.—The Receivers' cash account for the Railroad Company, as audited by the Master for February is as follows:

Balance Feb. 1.....	\$217,457.31
Receipts from all sources.....	2,331,058.54
Total.....	\$2,548,515.85
Disbursements.....	2,344,333.53

Balance, March 1..... \$304,182.32
The receipts exceeded the disbursements by \$86,725.01 for the month. The actual receipts of installments on the deferred income bonds during the month, kept in a separate account, were \$109,427.23, making the total to March 1, \$265,564.15. The accounts of the Coal & Iron Company show a balance on hand March 1 of \$52,997.27, February receipts, including balance Feb. 1, having been \$1,199,383.72, and disbursements \$1,146,886.45 for the month.

Philadelphia, Wilmington & Baltimore.—At latest dates about 202,000 shares of the stock of this company—over five-sixths of the whole—had been deposited for transfer to the Pennsylvania Railroad Company. Probably nearly all of it will come in. It is said that many who have sold their stock desire to receive the new Pennsylvania stock issued for the purchase instead of cash, the stock to be issued at market price—any difference in price of the stocks to be made in money. It is possible that some such arrangement will be made.

Pittsburgh, Cincinnati & St. Louis.—This company on April 1 filed in the Court of Common Pleas at Columbus, O., a petition for partition of the railway track and property owned jointly by this road and the Central Ohio as reorganized, between Columbus and Newark. The plaintiff also asks for an account to be taken of the money it has expended in keeping the track and buildings in repair, so that, in case of sale, a distribution can be properly made. The Baltimore & Ohio Company, by reason of the lease of the Central Ohio road, is made one of the leading defendants in the case.

The line owned jointly is from Newark to Columbus, 33 miles. Additional tracks are now much needed, and this proceeding is probably intended to prepare the way for the building of an additional line for one of the companies. This could not be postponed much longer. It is not probable that the suit is an unfriendly one at all.

Pullman Palace Car Co.—At the special meeting in Chicago, April 2, the stockholders voted to increase the capital stock to \$8,000,000, an increase of about one-third. The new stock is to be used for the new shops at Chicago and to otherwise extend the operations of the company.

Spartanburg, Union & Columbia.—It is understood that a controlling interest in this road, involving also the control of the Spartanburg & Asheville when reorganized, has been bought by the syndicate now controlling the Piedmont Air Line and the Atlantic Coast Line. The two Spartanburg roads extend from Alston, S. C., to Hendersonville, N. C., 116 miles, and are to be extended 20 miles further to Asheville.

Terre Haute & Merom.—This company has been incorporated to build a railroad from Terre Haute, Indiana, to Merom in Sullivan County, about 35 miles.

Texas & St. Louis.—This company has, it is said, placed \$4,000,000 bonds for the purpose of building its proposed extension from Texarkana to Cairo. Work on the line will be begun at once, and completed this year, if possible.

Texas Western.—The sale of this road under foreclosure (noted elsewhere) was confirmed by the Court on the day following the sale, and a deed to the purchasers was ordered made. It is understood that the road will be transferred to parties interested in some of the new lines in Mexico, who will extend it to the Rio Grande.

Toledo, Delphos & Burlington.—This company has bought in Toledo, O., a large tract of land near the new Wabash elevator. Work will be begun at once on docks, a grain elevator and other terminal facilities. Part of the tract will be reserved for shops.

Wabash, St. Louis & Pacific.—A dispatch to the Chicago Tribune from Danville, Ill., says: "To-day I have had a long conversation with Col. Robert Andrews, General Superintendent of all the Wabash lines east of the Mississippi River. Col. Andrews has been connected with this line since 1862 as Chief Engineer and Superintendent, and all these years has been steadily improving its facilities for doing business. To-day he has final authority from the directors to complete a long-cherished desire in the direction of utilizing its rolling-stock by equitably dividing its power divisions. Heretofore the Wabash, beginning at Toledo, ran 94 miles to Fort Wayne, to first power division (or repair shops); 109 miles to LaFayette, to second power division; 47 miles to Danville, third power division; 112 miles to Springfield, fourth power division, and 112 miles to Quincy, the end. He now proposes to begin at once the construction of extensive repair shops at Antioch, Ind., and Danville, Ill., and double the capacity of the shops at Springfield. When completed, which Col. Andrews thinks will be as early as June, the power divisions will stand thus: Toledo to Antioch, 124 miles; Antioch to Danville, 125 miles; Danville to Springfield, 112 miles, Springfield to Quincy, 112 miles. The necessity of the increase of the capacity of the Springfield shops arises from the fact that all the rolling-stock of the Chicago & St. Louis line will be overhauled at that point, leaving the general shops at Toledo charged with only original construction. This contemplated move will add about a thousand souls to the population of Danville, while the monthly pay-roll will be increased to \$30,000.

Wheeling & Lake Erie.—This company has now a considerable force at work between Huron, O., and Pike, on the New York, Pennsylvania & Ohio, and will soon begin laying track.